# Atrium - Introduction

## Welcome

Welcome to the award-winning Urban Science Building (USB) – home of the Newcastle University School of Computing.

This is part of a £350 million flagship city centre regeneration project. The 24-acre site is planned to include residential and academic centres as well as commercial businesses. The site was originally home to Scottish and Newcastle breweries who brewed Newcastle Brown Ale, which is now brewed in the Netherlands.

## Urban Science Building

The various parts of the School of Computing, which were previously based in three different buildings, have moved into this building. The Urban Science Building houses 1200 students, 55 academic staff, 120 postdocs and 2 doctoral training centres.

The building has won a number of awards, including:

* Lord Mayor’s Design Award for Sustainability
* CEEQUAL Award for best practise in sustainable drainage
* Constructing Excellence in the North East awards for:

Integration and Collaborative Working, Sustainability, Digital & Construction, Offsite Project of the Year, Building Project of the Year

* Collaborative Built Environment Award, Digital Project of the year—Digital Construction Awards
* Innovation in Teaching and Learning Award—Education Estates

Features:

Big Data Windows – The dots and lines across the windows at the front of the building are a self-portrait of the University website with the lines, dots and circles representing the information resources on the University’s website.

Punch card Past – The outside of the building is covered in dots, these represent the punch cards that were first used to control textiles machinery in the 19th century as well as early computers in the 20th century.

Limestone Floor – The floor of the Urban Science Building is made of blue limestone is around 340 million years old.

The Build of the Urban Science Building:

The building was completed in August 2017 on time and on budget. It cost £58 million to build this digitally enabled building. It is built on a triangular site, with one wing housing all the teaching facilities and the other housing the research facilities and laboratories.

## Cyber Physical Systems Laboratory

This laboratory focuses on systems that combine hardware, software, networking and control. Research enables modules to be co-developed and co-simulated by joining them together to enhance product performance and optimisation. It is currently developing integrated systems for transport, smart grids, building infrastructure, etc.

## Eat@Urban

The perfect space to refuel, whether it’s a formal meeting or a relaxing break, with a choice of barista coffee, deli sandwiches, paninis, jacket potatoes or snacks. It is open to staff, students and the general public from 8am to 4pm on a daily basis in term time.

# Atrium - Decision Theatre and CESI Labs

## Decision Theatre

The Decision Theatre is an Interactive 3D facility linked to the Urban Observatory that provides companies, policy makers and researchers with powerful data visualisation for collaborative decision making. It allows real-time data from the city to be analysed and explored and to solve problems with the sharing of data.

## Urban Observatory

The Urban Observatory is the largest urban sensing network in the UK. It records millions of observations daily and provides insights into how Newcastle works over multiple time frames and sectors. Sensors measure pollution levels, noise levels, water levels and can be used for decision making i.e. traffic calming measures in Jesmond, levels of nitrogen dioxide in the air, speed limit on the Tyne Bridge, etc. The Urban Science Building itself has 4000 sensors within it which monitor lighting, heating, etc.

## Centre for Energy Systems Integration (CESI)

CESI is a centre that aims to bring together energy experts from around the world to help unravel the energy network and understand future supply and demand. The Centre draws upon the expertise of leading academics from the Universities of Newcastle, Heriot-Watt, Sussex, Edinburgh and Durham.

# First Floor – Open Lab and the Lecture Theatre

## Open Lab

Open Lab is focussed on human interaction with computers and human-based design of computer systems. Many members of this group originate in disciplines outside computer science, including psychology, electronic engineering, clinical sciences, education, design and fine art.

One of the examples of projects in the Open Lab is the ambient kitchen. This has utensils that contain instruments that communicate with the network around them allowing the kitchen to help you work out if you are stirring, cutting, how long you have been doing it for, etc. This technology might allow someone with mild dementia to get help in the kitchen and enable them to get computer aided assistance to lead a more independent life.

Open Lab also houses the EPSRC-funded Doctoral Training Centre for Digital Civics.

## Lecture Theatre

The Lecture Theatre has a capacity of 303 students and has the ability for the lecturer to customise what is shown on each of the projected screens. This means the lecturer can still display the lecture notes whilst they are demonstrating a piece of code or practical element of the future.

There is a power socket at every seat and each seat has lumbar support.

# Second Floor – Reception / School Office and TIG

## Reception / School Office

The School Office contains all the Professional Services staff and the NUIT Computing Support team. This is the area where you should come and ask for help and support when required.

## Teaching Innovation Group (TIG)

The Teaching Innovation Group aims to encourage, foster and pursue innovation in teaching. TIG run the Outreach Programme with the Computing at School initiative. This programme runs teacher training, outreach events and visits to schools. TIG are also responsible for reviewing existing degree programmes, developing employability skills and maintaining industry links.

# Third and Fourth Floors – Flat Floor Teaching Area

## Flat Floor Teaching

312 Machines, with all the software that students will need for their degree. The machines run NetSupport software that allows the lecturer to send and receive files from the class. The lecturer is also able to share their screen to the students and give a lecture.

# Fifth Floor – ICOS

## Interdisciplinary Computing and Complex BioSystems (ICOS)

The ICOS team have expertise in machine intelligence, complex systems and biocomputing. The problems they focus on are natural complex systems and synthetic ones. This ranges from biology, chemistry and physics, to biological engineering, healthcare and software engineering.

# Sixth Floor – SRS

## Secure and Resilient Systems (SRS)

The SRS group’s research directly contributes to creating modern information systems, networks and infrastructures. The SRS group investigates fundamental concepts, development techniques, models, architectures and mechanisms that directly contribute to making modern information systems, networks and infrastructures that are secure in all aspects. Such systems need to be resilient to malicious attacks and accidental faults to deliver services that can be justifiably trusted by their stakeholders. The Academic Centre for Excellence in Cyber Security Research is also located here.