



## A LIVING LAB APPROACH

**Tim Belden**, associate professor in digital engineering at NMITE describes the institute's Living Lab approach to timber technology



**The New Model Institute for Technology and Engineering (NMITE)** is a pioneering higher education institution based in Hereford (see also p49). It stands out not only for its novel educational model, but also for its mission to drive industry-relevant research and development. This innovative approach is encapsulated in the Living Lab methodology, which integrates real-world industry challenges directly into the curriculum,

ensuring that students gain hands-on, practical experience that is immediately applicable in professional contexts.

Unlike traditional universities, NMITE students immerse themselves in a single module from 9am to 5pm, Monday to Friday, allowing for deep, focused learning. This intensive schedule operates for 46 weeks each year, enabling students to complete a Master's degree in Integrated Engineering in just three years, without compromising on the depth or breadth of their education.

A prime example of NMITE's innovative approach is the Centre for Advanced Timber Technology (CATT) at the Skylon Campus in Hereford. The CATT exemplifies NMITE's commitment to blending academic rigour with practical industry experience. An example of one of the projects under the Living Lab framework is the analysis of moisture movement in a cross-laminated timber (CLT) building. This project, which is being carried out over the lifetime of the building, seeks to provide invaluable insights into the behaviour of CLT structures, which are increasingly popular for their sustainability and structural efficiency. The Skylon Campus itself serves as a live test bed for this research, equipped with various moisture meters strategically placed to collect data over extended periods.

These moisture meters are installed in critical areas such as the internal walls between the staff room and workshop, and the external walls of studios. They measure and record the moisture content over time, providing a comprehensive data set that reveals how moisture moves vertically through the timber lamellae and the differences between external and internal layers. This data is crucial for understanding the long-term performance and durability of CLT buildings, especially in varying climatic conditions.

The practical implications of this research are significant. By analysing the moisture data, NMITE students and researchers can develop better construction practices and improve material performance, directly feeding these insights back into the timber industry. This iterative process of learning, applying, and refining is at the heart of the Living Lab approach, ensuring that academic research is continuously informed by, and contributes

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is associate professor  
in digital engineering  
at NMITE

to, industry advancements.

Moreover, nearly all modules at NMITE involve an industry partner who sets a real-world challenge for students to tackle. This close industry engagement enriches the student learning experience and ensures that NMITE graduates are well-prepared for the professional world. They learn to apply theoretical knowledge to practical problems, work collaboratively in teams, and communicate effectively with industry stakeholders.

NMITE's Living Lab approach, particularly through initiatives like the CATT, represents a forward-thinking model of education that bridges the gap between academia and industry. By embedding real-world challenges into the curriculum and fostering close industry partnerships, NMITE is producing graduates who are not only knowledgeable but also adept at applying their skills to drive innovation and improvement in their respective fields. This model not only benefits students but also contributes to the advancement of industry practices and technologies, making NMITE a beacon of modern engineering education.

If you are a student, or know a student who would like to know more, please visit the NMITE website at: <https://nmite.ac.uk/>

If you are in industry and are interested in finding out more and perhaps engaging with NMITE, please email:

[Tim.belden@nmite.ac.uk](mailto:Tim.belden@nmite.ac.uk) ■

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