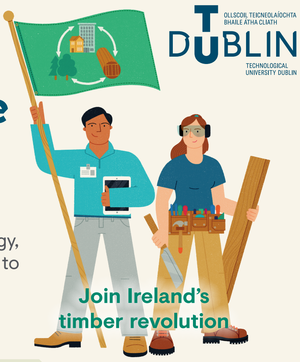
TU838

BSc (Hons) Sustainable Timber Technology

Ireland is at the start of an extraordinary number of revolutions in how and why we use timber and technology, how we do business and what we learn. It's a great time to consider a career as a timber technologist!



REVOLUTION #1

A radical shift in policy

UNESCO states that climate change is a *'real and rapidly-evolving threat for humanity'*. All generations need to understand the impact of climate change and be *'better equipped to take action to protect resources, the environment and the planet that sustains life, as enshrined in SDG 13'*. It advocates *'the importance of education as a key element of the response to climate change'* (UNESCO 2019).

The Irish Government's Climate Action Plan (2019) states: *'Decarbonisation is now a must if the world is to contain the damage and build resilience in the face of such a profound challenge.'*

The European Green Deal aims to make Europe the first carbon neutral continent and to decouple economic growth from resource use. A significant increase in the use of timber to make high quality, low-carbon products will be a key goal.

REVOLUTION #2

Educating the revolutionaries

Technological University (TU) Dublin has set itself the goal of becoming ***'a Powerhouse for Living & Breathing Sustainability'***.

TU838 BSc (Hons) in Sustainable Timber Technology has been designed with programme learning outcomes that explicitly embrace Sustainability and the Bioeconomy. It is the only programme in Ireland educating timber technologists for all parts of the Timber Industry. It commences in September 2021. We have places for **32 revolutionaries!**

This immersive, 4-year, full-time programme has a mix of theoretical and skills-based modules. Cross-sectoral skills (such as critical thinking, creativity, management, collaboration and professionalism) support the central focus on wood science, timber skills and production management. The programme has strong links with industry: field trips and guest lectures supplement the academic content, and work placement takes place in the sixth semester. **Our graduates will be at the centre of the Timber Industry**, creating timber products, driving innovation, adding value and maintaining quality.

REVOLUTION #3

New economies for new times

The concept of a **'bioeconomy'** has emerged in response to challenges of food security, energy security, climate change and depletion of non-renewable resources. The existing economy needs to be re-structured so that sectors that have traditionally acted separately start supporting each other in creating low carbon, biological products with less waste. Virtually everything that can be made from fossil resources can also be made from biological resources. Substituting sustainably-produced biomass for fossil resources facilitates decarbonisation and continued economic growth.

The **'circular economy'** refers to economic activity based on the use, reuse and recycling of resources and materials. In a circular economy, the value of material is preserved for as long as possible with the overarching aim of minimising the use of resources, especially non-renewable ones.

3 large board mills, **16** large timber frame firms, **300+** furniture and joinery firms & many, many more*

REVOLUTION #4

Growth in industry & employment

Foresters deliver logs and thinnings to saw and board mills. Some timber technologists manage their conversion to timber products such as planks, wood-based boards, veneers, strands and chips. Other timber technologists manufacture timber frame housing, joinery, cabinetry, furniture, fencing, pellets and even cheese boards! A further group of timber technologists provide technical sales support, provide consultancies or become entrepreneurs. **The harvest from Ireland's commercial forests is set to double** in the next 15 years: an extraordinary statistic and a great opportunity!

Enterprise Ireland is developing an innovation action plan to move the Sector from **€2.3 to €8 billion GDP by 2025**. At the same time employment is expected to rise from 12,000 to 20,000. Most of those jobs are outside the cities. A large number of talented timber technologist graduates will be needed for many years to come!

REVOLUTION #5

Innovation and cooperation

80% of Irish timber exports go to the UK. While that will remain our main market, due to the uncertainty of Brexit, the Irish Timber Industry needs to find new markets.

Because of the physical properties of Irish softwood timber, we must innovate and diversify the timber products we can offer if we are to find new overseas markets. So there will be lots of research and business innovation in the next few years.

Forest Industries Ireland and the Irish Wood & Furniture Manufacturing Network are working to increase recognition of the sector's importance and strengthen ties and communications across the sector.

REVOLUTION #6

Digital technologies and CNC

Like every other industry, digital technologies and the internet of things are having a huge impact on the **T**imber **I**ndustry.

3D modelling, computer numeric control (CNC) machines and 3D printers facilitate different ways of designing and making timber products and allow higher levels of resources efficiency. Scanning equipment has transformed the quality and speed of various processes in sawmills. Data collected provide insights unimaginable 20 years ago.

REVOLUTION #7

Timber for construction

The reason we use timber as a construction material is because it's **100% renewable**, it speeds up construction processes quite radically, has positive insulating and fire-resisting properties, results in lower CO_2 emissions, and, finally, it's also beautiful.

25 years ago 3-storey buildings made of timber were very unusual. The development of cross-laminated timber (CLT) technology since then is revolutionizing construction. Currently the world's tallest timber building is 18 storeys high. Given the level of competition worldwide it is likely it will be surpassed soon.

Besides being dramatic signs of confidence in this new timber technology, such skyscrapers are prestigious, cost effective and built very quickly. They also sequester huge amount of carbon dioxide (CO_2).

REVOLUTION #8

Innovating with ligno-cellulose

Ligno-cellulosic biomass (aka dried plant matter) includes harvested tree logs, bark, chippings and dust; the stalks of bamboos and cereal crops, even leaves. It is the most abundantly available organic material on the planet! For millennia it was burnt for heat. Scientists are now researching its use as a feedstock for new building materials, plastics, medical equipment, clothing, food and more. In the emerging bioeconomy, solar and biomass-powered ligno-cellulosic bio-refineries will replace unsustainable petro-chemical refineries in production of such goods. Sustainable forest management and timber production will become even more central to our well-being and economy.

*data correct as of December2020 with numbers growing annually.

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