**Video transcript: La Trobe University’s Nanotechnology program**

**Dr Peter Kappen – Nanotechnology lecturer**

If you imagine you pluck out one of your hairs and split it a hundred times and you take one of those fractions and then you split it a thousand times again, that’s just about a nanometre. What is a millimetre to a kilometre, is a nanometre to a millimetre.

**Hannah Couglan – Nanotechnology student**

A nanoparticle is a small collection of atoms or molecules which have one dimension out of three dimensions that is less a hundred nanometres.

**Kevin Rietwyk – Nanotechnology student**

A nanoparticle is basically a particle that is about a thousandth times the size of a cell.

**Associate Professor Paul Pigram – Head of Department of Physics**

You could say that nanotechnology simply represents the state-of-the-art in science and technology today. We now understand the world on the scale of nanometres.

**Katherine Collins – Nanotechnology student**

My favourite application of nanoparticles is medicine because if you can get a nanoparticle that is hollow, you are able to get drugs inside and you can selectively deliver that to the spot where it’s needed. You can put a cancer medication in and selectively deliver to where the tumour is.

**Kevin Rietwyk – Nanotechnology student**

You can make any number of different devices but at a much smaller range so rather than having them at a microscopic range, they go to a nanotopic range, which is a thousand times smaller.

**Hannah Couglan – Nanotechnology student**

A nanoparticle has novel properties that a larger type of material may not have, such as we can use titanium oxide particles in sunscreens that make them clear or we can use silver oxide particles in fridges so they have antibacterial properties.

**Associate Professor Paul Pigram – Head of Department of Physics**

If we look around the world we see many new industries emerging in the nanotechnology sector. In Australia we see very successful businesses producing nanoparticulate materials for medical and diagnostic and human cosmetic applications. There’s really a new generation of businesses being created that are relying on nanotechnology.

We offer nanotechnology as double degree programs at La Trobe. We do this because we are committed to blending both science and nanotechnology together.

**Katherine Collins – Nanotechnology student**

I get to study two majors in science at the same time, which saves me time, but also they link into each other. So something you learn in Chemistry can really help you with your Physics degree and vice versa.

**Associate Professor Paul Pigram – Head of Department of Physics**

The nanotechnology program at La Trobe offers innovative programs, excellent laboratory resources, a cutting edge approach, opportunities for international experiences and a personal approach from the academic staff.

**Katherine Collins – Nanotechnology student**

I like the teaching staff at La Trobe because they’re just on your level, they’re really engaging and they’re there for you.

**Associate Professor Paul Pigram – Head of Department of Physics**

In our practical laboratories we use a technology-enabled approach to really bring to life students’ practical experience. Scanning probe microscopies are a new generation of very advanced microscopes which allow you to examine the world at the atomic scale. They’re extremely flexible and really a core microscopic technique for physicists, chemists and biologists around the world. Students get hands-on experience with this next-generation technology.

**Kevin Rietwyk – Nanotechnology student**

You just get an atomically tip and you brush it over a surface and it measures the electrons that jump from the surface to the tip and from that you can get an idea of the topography, so the height trace of the material.

**Katherine Collins – Nanotechnology student**

I really like the campus. It’s really beautiful and open. There’s lots of trees and nature around and I really love the people here.

**Associate Professor Paul Pigram – Head of Department of Physics**

All of our students get together every fortnight to hear a leading speaker in the field. The person could be from government or from industry and they’re bringing the student body the most up-to-date knowledge from the field that we can present to them.

Our graduates have a very broad range of experience, in fact they graduate with three majors, they’re highly employable and have worked in a range of different industry sectors in Australia and indeed overseas.

**Hannah Couglan – Nanotechnology student**

I want to go into research, that’s what I’m really excited and passionate about. Whether that’s at La Trobe or overseas or for a company.

**Katherine Collins – Nanotechnology student**

Nanotechnology incorporates so many of the science majors. You’re still qualified for any other job that anyone else coming out with a science degree is.

**Hannah Couglan – Nanotechnology student**

It’s so interesting and it’s so new and exciting and there’s still things here to be discovered which I might be able to do.

**Katherine Collins – Nanotechnology student**

It has the potential to go anywhere and I like that about nanotechnology. I feel that I can get into but not be stuck in, it’s a field that’s emerging and growing.