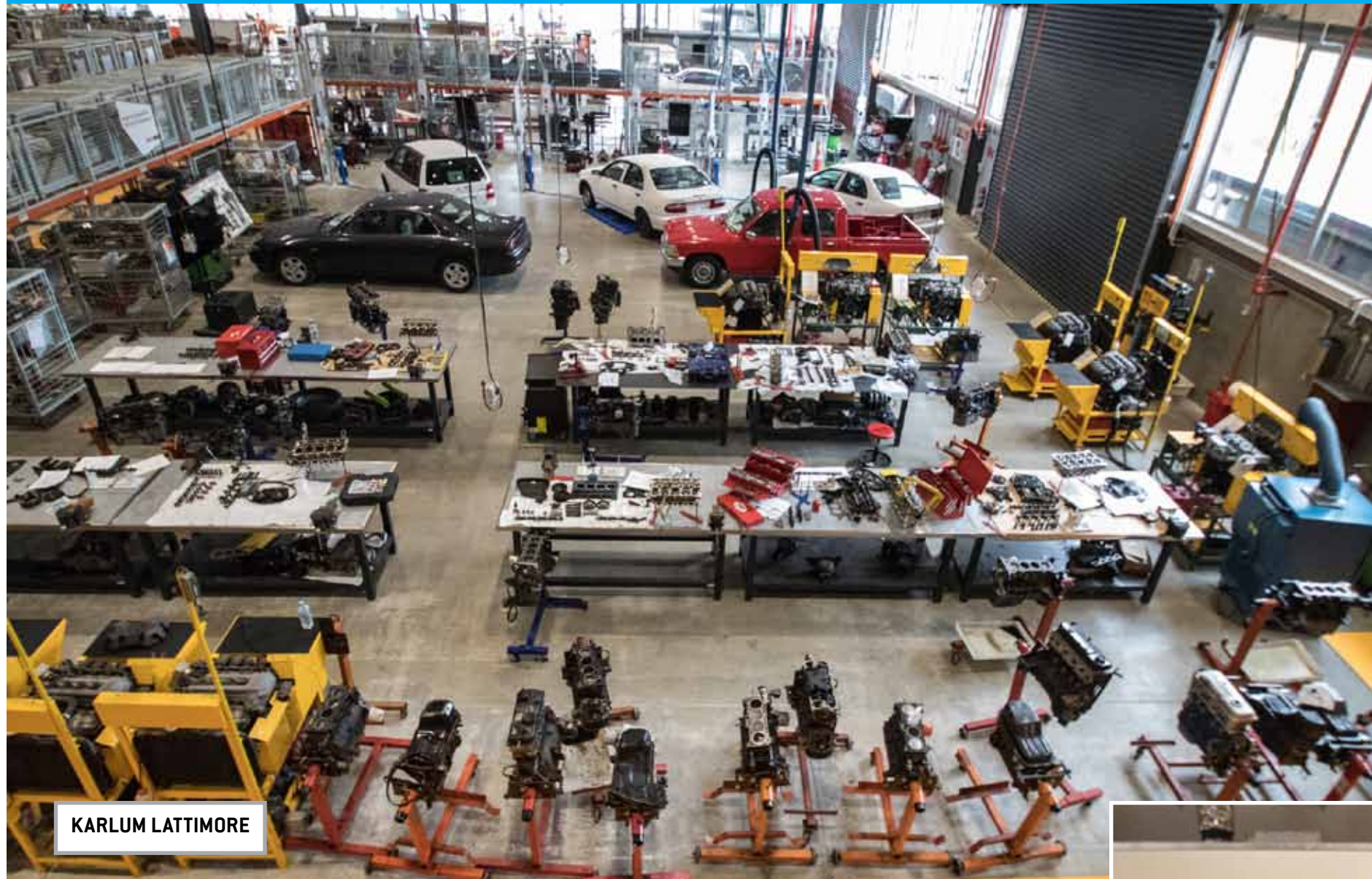


FEATURE: AUCKLAND UNITEC



KARLUM LATTIMORE

UNITEC STUDENTS AT THE CUTTING EDGE

Automotive students studying at Auckland Unitec are provided with a state-of-the-art learning environment and an impressive array of tools, equipment and 'automotive emulation' technology teaching aids.

Today's auto technicians need to know as much about electronics and electrics as they do about the mechanical workings of a vehicle. The emulation technology is a mix of real vehicle parts, software and electronics that explain specific systems.

The head of the automotive studies programme, Academic Leader and lecturer

Lee Baglow is determined to prepare his students for a 21st-century apprenticeship.

"Our aim is to make sure all students understand what technology is in use, or on the horizon, and how to learn independently."

He says, "Diagnostic technology and training is expensive and those using it are becoming increasingly specialised.

These highly skilled jobs and well-equipped workshops are where the future lies.

We are preparing our students for this environment." Lee says much of the ongoing training of auto technicians is done online or using computer technology, so Unitec automotive students also use 'self-guided' learning programmes along with support from lecturers.

HIGH TECH

To expose the students to the latest tools and techniques, Unitec has invested heavily in its learning environment and technology.

"This includes an up-to-date range of scan tools, PicoScopes and other brands of oscilloscopes, as well as further electronic diagnostic equipment. But what really sets us apart is our emulation suite."

This large 'classroom' contains a range of emulation equipment, software and computer tools that reveal the electronic layout and electrical connections of various vehicle systems. The emulations use the same sensors and components found in current vehicles and respond to diagnostic tools and technology. One emulation is configured to show the different types of electric vehicle drive trains. Others teach the workings of data bus topology,

passive and active safety systems, climate control and engine management (both CI and SI), to name but a few.

Lee says the emulation equipment allows students to work with a vehicle system without having to pull a vehicle apart.

There's a particularly impressive front end of a VW Golf, which has been opened up to expose wiring and other componentry, allowing students to see and feel how it all fits together. This fully working model can also be used to practice diagnostic fault-finding and other technical skills.

"All the components operate as they should in a vehicle - the difference being that students can gain easy access to the components and circuitry, so they can focus their efforts on electrical and electronic diagnosis, depending on the topic for that session.

"We are looking into the future with the training we provide,"

says Lee. "Our equipment includes several gasoline injector services units, diesel common rail injector function tester, and several gas analysers. We are anticipating a time soon when exhaust emissions are regulated and tested as part of the WoF inspection. We like to anticipate what our students may need to know."



Diagnostic technology and training is expensive and those using it are becoming increasingly specialised.

Lee Baglow
Pictured below with an EV drivetrain emulation



FEATURE: AUCKLAND UNITEC



Tutor Donald demonstrates the workings of an electrical board.

When pre-trade students are ready to take up an apprenticeship, they are able to carry out many of the day-to-day jobs done in a workshop.

Around 150 students are taking this year's 32-week pre-trade automotive course. A further 80 are studying for a bachelor's degree in Applied Technology which includes high-level auto diagnostics. Unitec also offers block courses for apprentices and warrant of fitness inspector qualification courses.

A recent survey of 2017 graduates from Unitec's Vehicle Systems and Materials courses showed 81 percent of respondents were now working, with 20 percent progressing to further study.

Lee says when his pre-trade students are ready to take up an apprenticeship, they are able to carry out many of the day-to-day jobs done in a workshop. "They can do basic maintenance involving vehicle suspension, brakes, steering, transmission, constant velocity joints, replace timing belts and so on. They are also taught compression testing, tyre changing with wheel balancing and take a car through a WoF lane."



Sonali works with an automotive electrical fundamentals board.



The front end of a VW Golf, which has been opened up to expose wiring and other componentry, allowing students to see and feel how it all fits together.

INDUSTRY SUPPORT

The automotive workshops and emulation suite are part of a \$70m investment in two new trade training buildings on the Unitec campus that were opened just over a year ago. Several million dollars were also invested in the equipment with partnerships and sponsorship from many large firms helping to provide some of the specialist gear.

Support from Giltrap Group, Volkswagen and Lucas Nuelle Training Systems (Pullman Group) has helped to set up the emulation suite, while Repco, Lincoln and John Bean were some of the international companies helping to set up the mechanical workshop.



Operations Manager Chris Mitchell is in charge of the infrastructure of the massive open plan building that houses the training areas for the automotive, building, welding and other trades taught on the campus. "The automotive area is made up of three bays: one for investigating engines and chassis systems with hoists and other general workshop equipment" (it doubles as a WoF lane for the evening courses for WoF Inspector training).

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From left: Jeff Shearer, Poppy Bloomfield, Nikiden Busch and Malachi Harris are partway through their course and all have high hopes of one day owning their own businesses. Like others in their class, they either have an apprenticeship lined up or are fairly confident they'll have one shortly. Many of the guys have been tinkering with their own cars for some time, while it's the first time Poppy has had the opportunity to get under a hood. "I've always been interested in cars but not brave enough to take one apart."

STUDENT VIEWS

Students spoken to by *Radiator* were all finding the huge open workshop and emulation suite a great learning environment. About halfway through their course they were excited about what they were being taught and felt the emulation tools really helped to build their understanding of how vehicle systems worked. Several had already taught themselves a lot of engine basics but as one said, "It's great to learn how to do things properly without using cable ties."

Students Nanayakkarawasam Agarage Pasan Dias (left) and Abdullah Ayub familiarise themselves with a steering rack.



KEEN TO START THEIR CAREER

Like most automotive students at Unitec, these three have big plans for their future after finishing the pre-trade course.

PATRICK CHAN

Has just got into drifting at a national level and wants to be able to maintain and tune his own car. He's already got a job lined up through his sponsor and fellow drifter Shane Allen.



NAKI HAUNGA

Won a Māori and Pacific trades training scholarship and is enjoying making sense of how an engine works.



DRE EVANS

Is hoping for a future in dyno race tuning.