



Universities Must Prepare 'Smart Engineers' For Tomorrow's Smart Cities

Indeed, universities are cranking out 'smart engineers' centered in Sustainable Development, even though "with AI, cities can soon enough cities run on its own." This trend was driven by the Smart City ideologues, not by natural or existing demand for such engineers. □ TN Editor

The future of our cities is undoubtedly smart. Artificial Intelligence (AI) and Automated Learning are set to revolutionise the way data is collected, managed and implemented in our lives. So how can education help?

To most people, these techy terms inspire nothing but thoughts of an epic World War Z-esque battle between men and machine. But, through

education, these fears of the fictitious fall of humanity can be replaced with knowledge on how to navigate our future concrete jungles and understanding on how we propel it to human-centred development.

With AI, cities can soon enough cities run on its own. Street lights can learn when the sun sets at different times of year through data input, and work out what time they need to turn on without a human managing it. Pedestrian crossings can create their own algorithms to decide how long would be needed for people to cross the road without humans having to input a manual code. Self-driving cars could even learn to determine the quickest route home after work without the driver even having to press a button.

Doctor of Civil Engineering and advocate for the development of a sustainable technological future at the [University of Nottingham](#), Alvaro Garcia Hernandez told *Study International*: “Smart cities in 2050 will be fully automated and managed by artificial intelligence that will monitor the urban environment continuously and regulate traffic and road maintenance systems autonomously.

“New manufacturing technologies will increase the exponential efficiency of construction and civil engineers will be mostly focused on coping with climate change and improving the quality of the urban environment.”

Now more than ever, engineering students need to embrace the digital future that is already impacting our lives. Take the emergence of “[smart bins](#)” for example. Bins that have inbuilt sensors are now being implemented to inform workers of when they need emptying. Discussions around machines picking up the rubbish and taking it to a nearby rubbish truck signify the continuous developments towards a digital future. With self-driving cars also in the technological pipeline, it may not be long until the whole process of city rubbish collection is a completely automated affair.

Humans will lead

Although the future of smart cities may be machine-led, human

innovation will always be the driving force behind these developments. With society hurtling towards the future of smart cities as fast as the widest bandwidth will allow, the next generation of tech innovators will be the minds shaping our 'tech-topias' for years to come.

This then poses the challenge of how do universities prepare students for a horizon that is yet to be discovered? Higher education should now be focusing on creating students with expertise in sustainable technology and digital awareness, but when this technology is still waiting to be created and utilized, it's near impossible to determine how the digital leaders should be taught.

"Our role as universities is to make sure that our students understand the magnitude of the challenges that will come, including the digitization of their future jobs, and are able to respond quickly to the challenges of an accelerated changing world," said Garcia Hernandez.

Civil Engineering student Reggie Clarke agrees, telling *Study International*: "While civil engineering has historically been quite slow to take on new challenges and innovations due to high considerations of the risks involved, this may not be true now. It is clear to me that the stakes will be incredibly high and adaptability is a skill that is so necessary for all engineers in the near future."

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