University of Central Lancashire
UCLan

Successful bid
Project
Sector

Royal Academy of Engineering
Engineering Humans
Engineering sector

Engineering Humans

Engineering Humans is a virtual education programme showcasing robotics, human rehabilitation and enhancement technology to inspire the next wave of engineers from economically diverse areas of Lancashire. A multi-disciplinary team from the University of Central Lancashire formulated and delivered a major outreach programme, focused on advanced robotics, cobot (collaborative robots), automation research and design, all of which are burgeoning academic and technological fields in the county. The programme was tailored to suit a region of high economic diversity; it was positioned and delivered online, reaching hundreds of aspirational high school pupils. An interactive online seminar series was also hosted, providing a step-by-step guide to producing a fully functioning exoskeleton, the design and plans of which were offered completely free-of-charge, enabling full public access. The project provided pupils, teachers, parents, and carers alike with bitesize resources of 'future making' success in engineering, spotlighting how STEM is applied in the real world.

Working with STEMFirst

11 STEM Ambassadors presented

'Young people make their minds up around the types of people that do STEM jobs by the age of 5-7, so stereotypical misconceptions are laid down very early. By the age of 11/12 years, these misconceptions can often become solidified meaning that young people do not understand the breadth of STEM careers, that they are 'for them', and also how exciting continuing to study STEM can be. By working with young people on this project, we are broadening young peoples perceptions of STEM.

Helen Heggie, Managing Director STEMFirst

School feedback

12 local schools participated

'It brought out the creative side in pupils that we wouldn't have expected to see. Some of the pupils that might struggle in some other lessons, excelled when they were able to think in a creative and imaginative way, creating technologies that don't exist yet and thinking about how they could help people around them. It enhanced their moral and social perspectives.'

Jenna Caw, Teacher, All Hallows School

Delivery with UCLan

12 online workshops delivered

'The local community now have a better understanding of the different roles that are available in engineering. It's been a great success seeing the schools and pupils have a go at building an exoskeleton. The feedback from the schools was that it was fun and interesting.

Off the back of this activity the teachers are continuing with this project in their future STEM activities as well as, implementing in to their curriculum for other year groups.'

Loraine Dinham, Project Lead Creative Innovation Zone

Programme delivery

Pupils from Christ the King Catholic School taking part in the online workshop and working together in teams to build the exoskeleton. Which was designed and 3-D printed by UCLan's Senior Engineering Lecturer Matthew Dickinson.




Impact

Academics

- Opportunity to pilot an idea and monitor the response.

'The idea of the designs is that they were never really finished, they had only just got started, the development of the arm moving forwards, I think will see more and more young people realising that this type of job is for them.

We used engineering humans as a pilot to bigger plans, we wanted to know how well people would like the topic and from our response we are now looking at trying to host a competition known as "ExoGames" using the same theme but introducing this to universities all over the world.'

Matt Dickinson, Engineering Lecturer, UCLan

University

- Opportunity to change misconceptions and educate local under-served communities about STEM careers

'This project is providing a huge wealth of positive STEM Capital to the young pupils and hopefully facilitating discussion, changed thinking and interest in finding out more about STEM and how they may contribute to the world of the future.'

Helen Heggie, Managing Director, STEMFirst

- Opportunity to make the future of STEM more diverse and inclusive
- Encourage the younger generation to consider a career they may not have known is available to them.

Schools

- Enhance curriculums in local under-served schools
- Girls have developed an interest in STEM

'Girls have developed a further interest in STEM careers (those who participated, in the project), We are now participating in 'innovate her' also, as this will allow more girls into the industry and encourage our KS3 students further. '

Joanne Shuttleworth, Teacher, South Shore Academy

Engineers/STEMFirst

- Building skills - presenting, engaging new audiences, communication, public speaking, improvisation

'I am really interested in teaching; I found the video tutorials really inspiring and the workshops have given me a lot of ideas to inspire the next wave of engineers.'

Iris Kyranou, STEM Ambassador, Research Associate