

## **Drone-based Experiential Learning and STEM Education**

### **The challenge**

In this technology era, Science Technology, Engineering and Mathematics (STEM) education is taking the central place around which, all the future job market will evolve. STEM is a focused area and development of workplace skills; critical thinking, problem-solving is at the priority level nationally and globally.

Australia is facing a STEM decay curve, low enrolments in a STEM indicate, there are not enough qualified STEM teachers. The low success rate in STEM area in schools shows that traditional teaching and learning practices and pedagogies to teach STEM have failed to boost student's interest and engage them in STEM activities.

### **What we're doing**

We are using an innovative approach by using drone technology to reinforce the fundamental STEM concepts and hands-on experience practice to ensure the deep learning, technical knowledge and skill enhancement.



Photo1: Drone-STEM Session at Essington Middle School



Photo 2: Drone-STEM Session at Christian Marrara College

We are designing and offering integrated STEM activities for students by incorporating the Australian curriculum and the use of drone technology. The project has approval from the Department of Education, NT. We are running drone-based experiential learning sessions in Middle and High Schools at NT to teach STEM concepts. Students are learning Programming and Coding with the integration of technology and writing their programs to manoeuvre a drone.



Photo 3: O'Laughlin's Science and Maths Teachers attending Drone-STEM workshop

We are running Interactive workshops and professional development sessions to science and maths teachers to help them to better integrate the technology in their designed teaching activities.

### **How it helps**

The research will improve STEM education through an experiential learning pedagogy. 'Hands-on practise' kind of activities' will leave a lifelong learning experience on learners. The project will help students to develop their interest in STEM activities which lead further to improve the success rate of students in the STEM area. Using Experiential learning, students will learn the STEM concepts in an interactive and a fun way.

The project will improve the teacher's knowledge of STEM and will enable them to do quality STEM teaching. Professional Development sessions will equip the teachers with technical knowledge and skill and help them to use technology in classrooms with confidence.

In the long run, the project will equip students and teachers with technical knowledge and skills that can be used to cope with the challenges of the 21st-century job market. CDU will create a partnership with schools to conduct more STEM activities for students and teachers in future.