

# MEM20422 Certificate II in Engineering Pathways &

# AVI30419 Certificate III in Aviation (Remote Pilot) (Skills Generation)

## Build & Fly a Drone Project

VET  
(VETiS)

Vocational Education Training



## Overview

Skills Generation's offering attached to the MEM20422 Certificate II in Engineering Pathways is forward thinking and aims to educate your students about emerging and increasingly more prominent technologies by integrating those exact technologies into the qualification's curriculum. While Skills Generation focuses on the future and ensuring your students are prepared for the changing landscape of engineering and manufacturing fields, we are also focussed on these disciplines' roots.

Our MEM20422 qualification firstly lays the groundwork, introducing students to the foundations of engineering and manufacturing – correct use of hand and power tools, appropriate understanding of PPE, proper welding technique etc. – before having your students then apply this foundational knowledge in a variety of projects including the construction of their own individual drone.

The Skills Generation MEM20422 package is also flexible and can be manipulated in several ways to either stand alone as an introduction to engineering for a new age; or can be integrated easily to fit within your school's already established manual arts curriculum.

## VETiS Eligibility Requirements

The MEM20422 Certificate II in Engineering Pathways is funded by DESBT (Queensland Department of Education, Small Business and Training). Students may be eligible to utilise their VETiS funding opportunity if they meet the following criteria:

Students are either Australian or New Zealand Citizens or Permanent Residents

Students are in either Year 10, 11 or 12 when they participate in the course

Students have not previously utilised their VETiS funding

Please speak with the School's VET Coordinator to check VETiS eligibility.

## Course Entry Requirements

Students must have demonstrated satisfactory level in English and Maths in a pre course LLN Test.

## Assessment Types

The course contains both theory and practical assessments on a unit by unit basis. Theory assessments are open-book, comprising of multiple choice and short answer questions.

## What you need to know

The Build and Fly a Drone Project provides your students with the skills and knowledge to integrate and apply traditional engineering skills to the emerging technologies that are changing the global engineering landscape. Valuing the words of physicist Richard Feynman, "What I cannot create, I do not understand," the project provides your students with a comprehensive understanding of drone engineering through the construction of an individual drone, which they are able to keep.



This program will allow your students to:

Gain foundational knowledge and experience in a broad range of engineering disciplines

Apply these acquired skills in the construction of individual drones and a larger group-based drone

## Course Delivery Timeline

### TERM 1

During Term 1, your students are introduced to the basics of engineering, welding and occupational health and safety through the following project:

#### **Project One: Build a Cube (Introduction to Engineering)**

Units of competency completed through this project include: MEM13014A Apply principles of occupational health and safety in the work environment

MEM16006A Organise and communicate information

MEMPE002A Use electric welding machines

MEMPE006A Undertake a basic engineering project

### TERM 2

During Term 2, your students work together in groups of four to build the SG X880, a drone specifically designed by Skills Generation for the project as a means to introduce your students to the fundamentals of drone engineering. Students will work as a team using hand tools, power tools and workshop machines to build the SG X880.

#### **Project Two: Build the SG X880 (Introduction to Drone Building)**

Units of competency completed through this project include: MSAPMSUP106A Work in a team

MEM18001C Use hand tools

MEM18002B Use power tools/hand held operations

MEMPE001A Use engineering workshop machines



### TERMS 3 & 4

During Term 3 and 4, your students will put the skills and knowledge they have acquired thus far to the test in the construction of individual SG X150 Drones - also designed specifically for this project. Utilising the same principles applied in the SG X880 build, students will work to build and configure (code) the individual drone.

#### **Project Three: Build the SG X150 Drone (Drone Building)**

Units of competency completed through this project include: MEM16008A Interact with computing technology

MEMPE007A Pull apart and re-assemble engineering mechanisms

Additional Units to be completed during this term include: MSAENV272B Participate in environmentally sustainable work practices

MEMPE005A Develop a career plan for the engineering and manufacturing industry

This time is also used as an opportunity for your students to start flying the drones in a non-accredited capacity. This time can also be used as an opportunity for students to follow up any outstanding work they may have, or to get a head start on their AVI30419 qualification (should this fit into your school's timetabling).

# Follow on qualification: AVI30419 CERTIFICATE III IN AVIATION (REMOTE PILOT)

## Overview

Students who successfully complete their MEM20422 Certificate II in Engineering Pathways are eligible to enrol and undertake the AVI30419 Certificate III in Aviation (Remote Pilot) as a follow on course free of charge.

Where your students learned how to build their drones in the MEM20422 qualification, they will learn to effectively fly drones in this qualification.

Skills Generation's AVI30419 qualification has been written in consideration of Civil Aviation Safety Authority (CASA) regulations to ensure students are provided with the most up to date knowledge on how to safely, responsibly, and compliantly fly their drone to adhere to these regulations. Your students will also be eligible to apply for their CASA Remote Pilot Licence (RePL) and Aeronautical Radio Operator Certificate (AROC) through this course. For further information, please contact us.

## Course Units

- AVIF0021 Manage human factors in remote pilot aircraft systems
- AVIW0004 Perform operational inspections on remote operated systems
- AVIY0053 Manage remote pilot aircraft systems energy source requirements
- AVIY0031 Apply the principles of air law to remote pilot aircraft systems operations
- AVIZ0005 Apply situational awareness in remote pilot aircraft systems operations
- AVIY0052 Control remote pilot aircraft systems on the ground
- AVIY0023 Launch, control and recover a remotely piloted aircraft
- AVIW0028 Operate and manage remote pilot aircraft systems
- AVIH0006 Navigate remote pilot aircraft systems
- AVIY0027 Operate multi-rotor remote pilot aircraft systems
- AVIE0005 Complete a Notice to Airmen (NOTAM)
- AVIH0007 Operate remote pilot aircraft systems under night visual line of sight

## Course Fees

### MEM20422 Certificate II in Engineering Pathways

- VETiS Funded Student FREE
- Fee For Service Student \$4,350.00
- Fee For Service Student (Discounted Rate)\* \$1,200.00

### AVI30419 Certificate III Aviation (Remote Pilot)

- VETiS Funded Student FREE
- Follow on Student (Continuing on from MEM20422) \$100.00
- Fee For Service Student \$3,100.00
- Fee For Service Student (Discounted Rate)\*\* \$1,200.00
- CASA RePL Application Fee\*\*\* \$40.00

Please speak with the School's VET Coordinator to check the student's VETiS eligibility.

\* to be eligible for this discounted rate, fee-for-service students must be enrolled in a class of 15 or more VETiS funded students undertaking the MEM20422 qualification.

\*\* to be eligible for the discounted rate, fee-for-service funded students must be enrolled in a class consisting of 15 or more VETiS funded students undertaking the AVI30419 qualification, or 15 or more students previously VETiS funded for the MEM20422 qualification.

\*\*\* payment of application fee is required by all students who intend to achieve their CASA Remote Pilot Licence as part of their aviation studies.

