

## Products & Content

V1.1 – 6th March 2025

© 2025 Quanser Consulting Inc., All rights reserved.  
For more information on the solutions Quanser offers,  
please visit the web site at: <http://www.quanser.com>

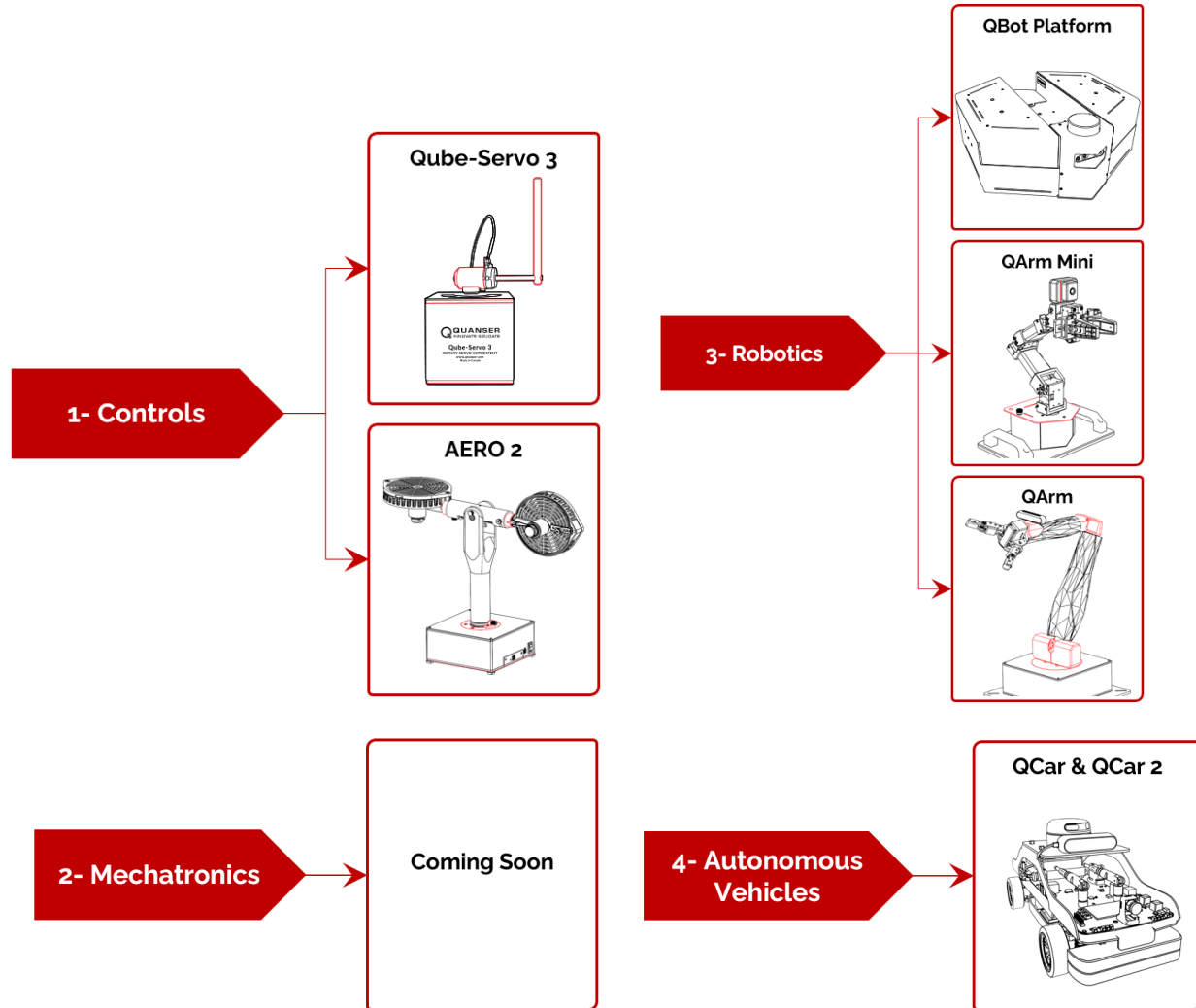


Quanser Consulting Inc. info@quanser.com  
119 Spy Court Phone : 19059403575  
Markham, Ontario Fax : 19059403576  
L3R 5H6, Canada printed in Markham, Ontario.

This document and the software described in it are provided subject to a license agreement. Neither the software nor this document may be used or copied except as specified under the terms of that license agreement. Quanser Consulting Inc. ("Quanser") grants the following rights: a) The right to reproduce the work, to incorporate the work into one or more collections, and to reproduce the work as incorporated in the collections, b) to create and reproduce adaptations provided reasonable steps are taken to clearly identify the changes that were made to the original work, c) to distribute and publicly perform the work including as incorporated in collections, and d) to distribute and publicly perform adaptations. The above rights may be exercised in all media and formats whether now known or hereafter devised. These rights are granted subject to and limited by the following restrictions: a) You may not exercise any of the rights granted to You in above in any manner that is primarily intended for or directed toward commercial advantage or private monetary compensation, and b) You must keep intact all copyright notices for the Work and provide the name Quanser for attribution. These restrictions may not be waived without express prior written permission of Quanser.

## Background

Teaching content is separated by different engineering areas and product type. Currently separated in 4 core topics: Controls, Mechatronics, Robotics and Autonomous Systems. Each of these topics are taught with different Quanser products as shown below.



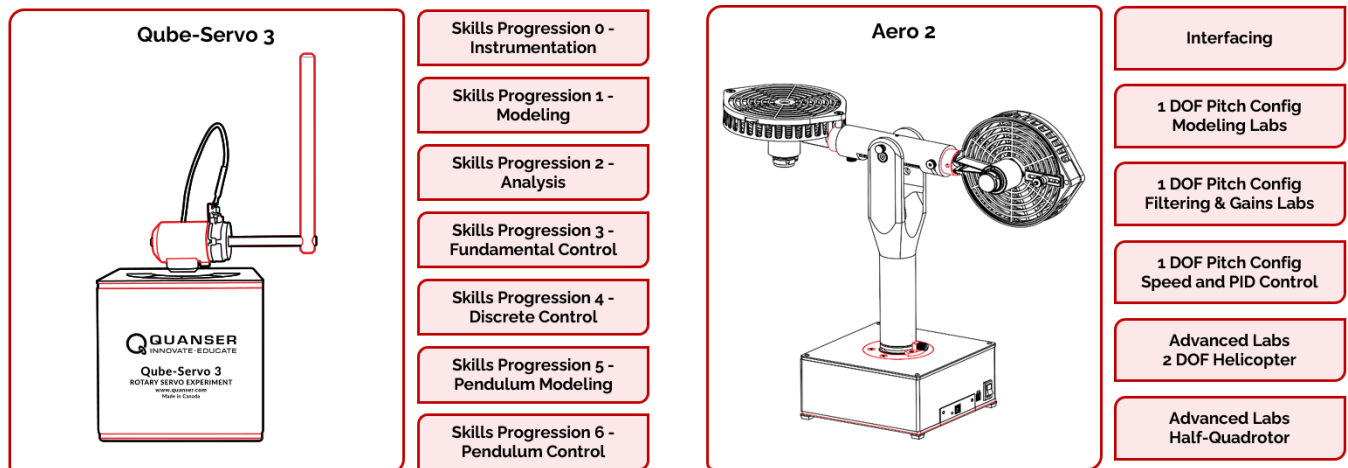
Every lab consists of the following documentation,

- **Concept Reviews:**  
Independent reference material for student use that serves as a means for them to refresh the most important concepts and equations for any lab. These exist mostly in a separate concept\_reviews folder in the Quanser folder or could be placed alongside the lab.
- **Application Guides:**  
Lab specific introduction that guides students towards why the lab is important and what they will learn as well as things they need to know before starting the lab.

- **Lab Procedures:**  
Lab specific instruction manuals with guided steps to walk students through the lab, reflect on important considerations and take notes or screenshots and capture results.
- **Recommended Assessments:**  
Lab specific take home questionnaire that requires critical thinking and further analysis of lab results. The results from the lab procedure will be analyzed here by the student.

## Controls

The Qube-Servo 3 curriculum is broken down into a list of 7 pipelines in total with more than 16 labs. For more information, refer to the curriculum pipeline document under the 1\_Controls/Qube\_Servo\_3 directory. The Aero 2 curriculum has 10 labs for the 1DOF Pitch configuration of the device as well as 3 labs each for the advance configurations of 2DOF Helicopter and Half-Quadrotor. The following image shows these divisions.

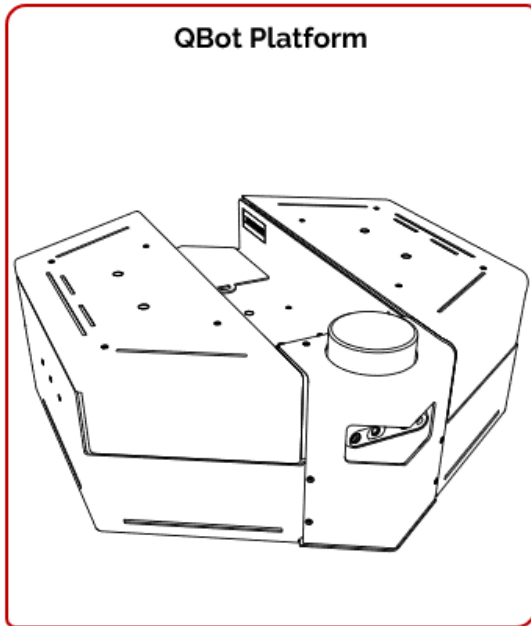


## Mechatronics

The Mechatronics teaching content will be released later this year.

## Robotics

The Robotics curriculum include labs for the QBot Platform, QArm and QArm Mini and is separated by skills progressions to learn different aspects of robotics. The skills progressions that match each robot are shown in the following images. Use this as a reference of which skills progressions are part of the curriculum for each robot



**Skills Progression 0 -  
Play (Intro to device)**

**Play QBot**

**Skills Progression 1 -  
Task Automation**

**L1 – Forward Kinematics**

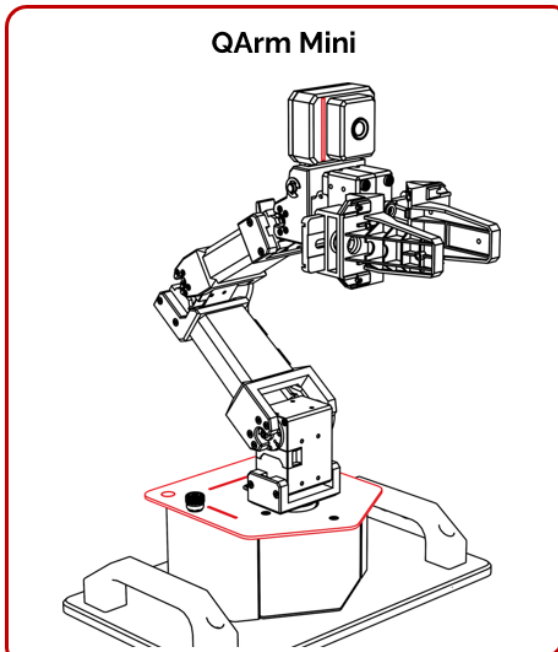
**L2 – Inverse Kinematics**

**L3 – Line Following**

**L4 – Object Detection**

**Skills Progression 2 -  
Surveying**

**Coming Soon**

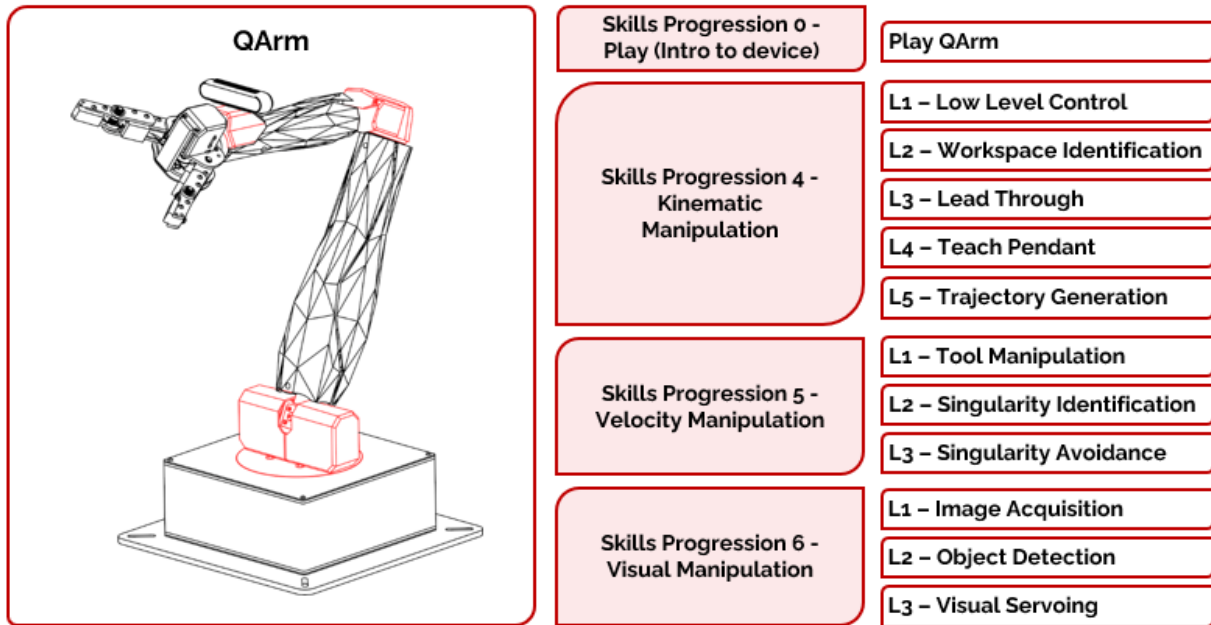


**Skills Progression 0 -  
Play (Intro to device)**

**Play QArm Mini**

**Skills Progression 3 -  
Pick and Place**

**Coming Soon**



## Autonomous Systems

The Autonomous Systems curriculum supports the devices from the Self-Driving Car Studio (SDCS), which are QCar and QCar 2. The curriculum is separated by skills activities that are different from the rest of the curriculum, these are more advanced and just include a lab guide to follow to create a self driving stack. Currently there are 6 released skills activities. Use the following image as a reference.

