

In Dec 2017 Stryke Force conducted an all-day training course focused on using the CTR Talon SRX motor controller on FRC robots. The course was intended as an introduction to motors, encoders, the Talon SRX and included several live tuning examples. A "Quick Start" guide was provided at the end of the course. Roughly 10 teams and 80 mentors / students were in attendance.

This was the second year Stryke Force conducted the training class. In the second year we adjusted several elements based on feedback from the first year. We also recorded the second-year course.

That second-year training course has now been edited into nine chapters and uploaded to YouTube. The slide deck used during the course is also available.

The course instructor was Jerry Culp, Systems Mentor for Stryke Force. Jerry has 30 years of experience designing motors and motor controllers. Jerry pioneered the patented brushless, sensorless motor and motor control technology currently used by Stryker Corporation in surgical operating rooms around the world.

This course is not intended to replace formal college level training in motors, motor design, and motor control theory. The intent of this course is to provide a starting point a FIRST team / student would need to connect a Talon SRX to a motor and make something work. An introduction to closed loop control theory is provide. It is our hope that this course would allow a FIRST team to use a Talon SRX in closed loop mode to bring a function to life on their robot.

There are also several software tools used during this course. These tools were custom written by Stryke Force Mentors and Students. Those tools are now published and available. It is our intent to support these tools for public use going forward. Please be patient as we do our best to provide that support. There are a lot more of you than us. And most of use still have day jobs that consume our time!

We encourage feedback and suggestions.

We also plan to add "appendix" chapters over time as there are new things to teach. Firmware is always progressing, and new techniques are developed.

Note: This course was conducted using Talon SRX firmware ver. 2.34. The 2018 competition year used ver. 3.3. We are not aware of any element in this training that cannot be achieved with ver. 3.3 or later. But there may be changes in how things are named or the API interface. So always refer to the latest CTR documentation on the Talon firmware.

Enjoy

Stryke Force, Team 2767