

ROBOSUB 2025

University of British Columbia Okanagan
Okanagan Marine Robotics

Community & Outreach Description

Kelowna Secondary School

Okanagan Marine Robotics led several outreach initiatives at Kelowna Secondary School (KSS), engaging students in Grades 10 through 12. On our first visit, we introduced our team, explained how we operate as a university design group, and shared insights into how we manage sponsorships, funding, media, and competition logistics. These aspects helped highlight the real-world skills required to run an engineering project beyond just technical work.

We brought a physical model of our Autonomous Underwater Vehicle (AUV), allowing students to see the complexity of the design. We showcased several in-progress systems, including the torpedo, grabber arm, grabber hand, leak sensors, and hydrophones, as well as early-stage builds and unfinished prototypes.

We also presented our software systems, demonstrating how the AUV uses data from the Doppler Velocity Logger (DVL), Inertial Measurement Unit (IMU), and RGBD cameras. We explained how object detection algorithms like YOLO and color filtering help map the environment and identify targets, feeding into our autonomy framework for decision-making and task execution.

Beyond the demo, we worked directly with KSS students on their robot. Our team provided troubleshooting support, shared programming strategies, and guided them through design challenges. One team member acted as a dedicated liaison, maintaining regular contact and connecting them with additional advice as needed. This mentorship continued through their competition preparation.

We also led a university application and engineering career workshop to help students understand pathways into post-secondary programs. We discussed how design teams build skills and foster connections and how early involvement in robotics enhances future opportunities.

Later in the year, we returned to present to the Engineering 11 class alongside other UBCO design teams, including OK Motorsports and Aerial Robotics and Rocketry. Each team gave short presentations on their work, tools, and the problems they solve, emphasizing the balance of technical skill and creativity in engineering.

We also gave a technical talk to the AP Physics 11 class, showing how concepts like motion, force, and energy apply directly to robotics design. It was a chance to connect physics theory to real-world engineering.

UBCO Prospective Student Tour

We took part in a UBCO-hosted tour for incoming and prospective engineering students. We

introduced visitors to our AUV and explained how our interdisciplinary team, spanning mechanical, electrical, and software roles, builds a fully autonomous system. We broke down how each subsystem fits into the bigger picture. The session drew strong interest from students and community members.

Glenmore Elementary School

We also visited a Grade 1 class to introduce STEM in a fun, accessible way. We explained robots and marine exploration using simple language and images, then led a “robot simulation” game. Students then built and decorated their own pool noodle boats, testing how many pennies their designs could hold. This hands-on activity introduced basic engineering ideas like buoyancy and design iteration.