Robot Drone League (RDL) × Kentucky Career Pathway Standards — Alignment Guide for Educators and Program Leads

Overview

The Robot Drone League (RDL) immerses students and educators in robotics, drones, electronics, advanced manufacturing, computer science, and cybersecurity through hands-on labs and integrated STEM learning. This alignment connects the Kentucky Career Pathway Standards for grades 9–12 in Mechanical Engineering, Engineering Design, Computer Programming, Cyber Engineering, Electrical & Electronic Engineering, Automation Engineering, and Aerospace Engineering to the Robot Drone League (RDL) Challenge and Curriculum.

Standards Crosswalk

Abbrev: Std = Standard; Skills = Key skills from Kentucky Career Pathway Standards; RDL Sections = related manual content; Evidence = artifacts for verification.

Safety & Health

Skills: PPE, ESD precautions, tool safety, hazard ID, ergonomic setup, online safety.

RDL Sections: Safety briefings; Design & Safety Requirements; ESD in wiring labs; Flight safety.

Evidence: Safety logs; ESD mat use; inspection checklists; ergonomic workspace plans.

Electronics & Circuitry

Skills: Component ID, schematics, DC/AC theory, analog/digital electronics, soldering, troubleshooting.

RDL Sections: ECP layout; crimping; continuity checks; Arduino integration.

Evidence: Wiring diagrams; assembled PCBs; oscilloscope captures; code linked to hardware.

Robotics & Mechanical Systems

Skills: Chassis assembly, drivetrain design, manipulator build, autonomous/teleop control, design optimization.

RDL Sections: goBILDA chassis build; claw; Arduino drive code; scrimmage operations.

Evidence: Build photos; gear ratio calcs; code with comments.

Advanced Manufacturing

Skills: Blueprint reading, CAD modeling, CAM/CNC programming, machining, quality measurement.

RDL Sections: CAD review; Onshape parts; precision measurement of parts; additive manufacturing of drone/robot components.

Evidence: CAD exports; G-code; tolerance measurement logs.

Computer Science Integration

Skills: Device selection, troubleshooting, network basics, computational thinking, programming, modeling/simulation, data visualization, collaboration, ethics in computing, algorithm design, abstraction, data analysis.

RDL Sections: Arduino/FTW programming; autonomous mission simulation; data logging; networked controller setup; safe online collaboration.

Evidence: Pseudocode; algorithm diagrams; data visualizations; troubleshooting logs; code repositories.

Cybersecurity

Skills: Cyber hygiene, password management, network security basics, identifying threats, understanding encryption, safe digital collaboration, risk assessment, secure coding practices, threat modeling, incident response.

RDL Sections: Secure programming practices; controller network security setup; data transmission protocols; implementing authentication and authorization; cybersecurity awareness in team projects.

Evidence: Security configuration logs; incident response simulations; encryption demonstration; cybersecurity awareness checklists; secure coding reviews.

Credential Pathways

OSHA-10 General Industry
ETA Basic Systems Technician (BST)
NC3 Electricity Introduction & Precision Measurement Instruments
MACWIC Level 1, NIMS Machining Level 1
FAA Airframe/A&P

Evidence Checklist

Safety logs; PPE and ESD compliance
CAD screenshots; wiring diagrams; CAM/G-code files

Breadboard/PCB builds; soldering samples
Arduino and FTW code with documentation
Flight logs; inspection sheets; data visualizations
Cybersecurity audit logs; secure configuration files