



## POSITION DESCRIPTION

### Product Design Engineer

#### ***Position Summary:***

Join a team that imagines and executes student robotics products, programs, competitions ranging from entry level remotely operated vehicles to multi-domain autonomous systems. Share your expertise with the next generation of engineers and challenge K-16 students with educational products to replicate real-world environments and capabilities. Work with a team of staff, partners, and educators from around the world to engage students in cutting-edge experiences and help build an international community of innovators capable of substantive contributions to the emerging field of robotics and autonomy. (Robots, innovation, and creativity – it's almost too good to be true!)

Within the RoboNation Team, the Product Design Engineer will design educational products to enhance and expand RoboNation's product portfolio to meet a broader audience and fulfill RoboNation's mission of providing a pathway of hands-on educational experiences.

#### ***Primary Duties and Responsibilities:***

- 1) Product Design
  - Design solutions to upgrade and enhance existing products and create new products.
  - Contribute to the ideation, design, and manufacturing phases of new product development.
  - Create detailed designs for new products.
  - Create computer aided design (CAD) models and drawings of mechanical components to enhance or upgrade existing products.
  - Create CAD models and drawings of new products.
  - Create electrical schematics and printed circuit board (PCB) layouts of electrical systems used in existing products upgrades and new product development.
  - Design component and product validation test fixtures and equipment.
  - Design software and firmware to control electronic systems within test devices and products.
- 2) Product Development
  - Evaluate existing products and contribute to product roadmaps.
  - Create test and validation procedures for components and prototypes.
  - Source materials and components for products.
  - Collaborate with product manufacturers and distributors.
- 3) Prototype Fabrication & Testing
  - Create mechanical and electrical prototypes.
  - Create test and validation fixtures and equipment.
  - Test and validate prototypes and product components.
  - Document tests and propose iterative design solutions to improve products' functionality and quality.
- 4) Other Responsibilities
  - Create CAD models and drawings for use in user manuals.
  - Other duties as assigned.



### **Supervision**

Reports to: Product Manager

### **Requirements**

- Experience designing mechanical components and devices using design for manufacturability and engineering design processes.
- Experience in all phases of electronic circuitry design including creating electrical schematics, designing PCB layouts, validating designs against design rules, and working with manufactures to have PCBs fabricated and assembled.
- Experience in mechanical fabrication including 3D printing, CNC tool programming and use, and use of hand and power tools to create prototypes and devices.
- Experience in electronic circuitry prototyping fabrication.
- Experience in microcontroller programming.
- Ability to work independently and as part of a team.
- Excellent communication skills (written and verbal).
- Team player with a proactive attitude.
- Ability to organize tasks, multi-task across programs, and meet deadlines.
- Exceptional problem-solving and analysis skills.
- Strong attention to detail.
- Ability to travel domestically and internationally.

### **Strongly Desired Qualifications:**

- Bachelor's Degree or equivalent experience in mechanical and electrical engineering

### **Working Condition**

- Exempt position under the Fair Labor Standard Act (FLSA)
- Full time employment
- Work can be performed outside an office environment (telecommuting)
- Work will be performed at event sites and other locations away from office
- Work with a group of awesome people

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### **About RoboNation**

RoboNation is a nonprofit organization whose mission is to provide a pathway of hands-on educational experiences that empower students to find innovative solutions to global challenges. Robotics is the “sweet spot” of the broad world of STEM and our focus is to engage students in interactive efforts, provide increasingly challenging activities, and prepare them for jobs in the ever-growing world of automation and technology.