**NFPA Project Grant**

The National Fluid Power Association (NFPA) is a trade association focused on strengthening the hydraulics and pneumatics industry. With more than 300 fluid power manufacturers, distributors, and suppliers in its membership, NFPA works to advance fluid power education, technology and the industry as a whole.

**Overview and Background**

In a biennial survey, members of NFPA consistently rank the recruitment of a skilled workforce as one of the most challenging issues their companies face. This is likely because not enough schools are teaching hydraulics and pneumatics, nor preparing their students for careers in the fluid power industry. As a result, NFPA seeks to increase the number of students educated in fluid power, and to connect them to jobs in our industry.

 The NFPA Education and Technology Foundation is a tax-exempt, charitable organization, affiliated with NFPA, that is dedicated to meeting this workforce development need.

This grant award aims to create cost-effective, replicable, and easy to implement projects for students at the high school and early college grade levels. The primary goal is to develop and pilot the full scope of the project by finalizing the BOM, lesson plans, and creating documented, tested curriculum for NFPA to publish publicly and share with other schools to use. NFPA may be able to help source an industry mentor to provide guidance.

**Funding Information**

Preference will be given to applicants whose final project is replicable and supports a lab class of about 10-15 students with the estimated cost of the final project to be less than $500 for high school and $2,000 per university class and those that show alignment with curriculum standards applicable at your school, or accrediting body. The grant award can be more than those limits to defray the costs of developing the lesson plans and testing the project. Project ideas have been identified and validated by industry so applicants would choose one of the existing NFPA project templates. Awards will be disbursed to educational institutions or eligible community organizations.

**Grant Application**

* Institution:
* Project Organizer:
* Project Name:
* Total Funds Requested:

1. **Describe the proposed project.** What are the goals and objectives? Describe the intended benefits of the project for students and their faculty.
2. List which **NFPA Core Competencies** will be taught as a result of this project.

**High School:** Please describe learning outcomes.

**Tech School NFPA Core Competencies:**

1. Read circuit diagrams and understand function of components in fluid power systems
2. Determine and perform calculations to move loads in fluid power systems (e.g., torque, speed, power)
3. Specify and size components for fluid power systems (e.g., pumps, valves, cylinders, hoses, filters, reservoirs, accumulators)
4. Analyze and troubleshoot problems with fluid power systems
5. Program and connect electronic controls for fluid power systems
6. Promote safe working conditions with pressurized systems

**University NFPA Core Competencies:**

1. Understand fluid power benefits and limitations
2. Conceptual and theoretical understanding of fluid power laws and principles (including energy transfer and power efficiency)
3. Understand fluid power components and circuits
4. Understand the impact of fluid properties, i.e., fluid viscosity, on fluid power system efficiency and performance.
5. Understand machine level requirements and translate into fluid power system requirements
6. Apply design, simulation and analysis tools to fluid power components and systems
7. Appropriately size components in fluid power systems
8. Integrate sensing and electronic control functions with fluid power components and systems
9. Cite hands-on experience with fluid power components and systems
10. Inspect, analyze and develop corrective action for product failure
11. **What are the total funds required?** Provide a budget for the project, along with a request for the specific funds / materials being sought from NFPA. Is additional support being requested from other sources?
12. **What is the timetable?** Detail the project start-up time and completion date, along with any significant interim milestones. Be sure to include a deadline for when you need assurance of support from NFPA to ensure a successful planning process.
13. **Who are the project leaders?** Explain who, faculty and/or industry volunteers, who will be leading students in developing new understandings of fluid power technology and applications, along with details of how that help will be offered.
14. **How will the students be involved?** Give details about the number of students involved along with descriptions of what they will be doing.
15. **Describe the opportunities to extend the benefits of the project - its multiplier-effects** (e.g., expected development of additional instructional units / courses in fluid power for project participants, plans for using the project as an instructional tool for other students, etc.).

**Upon Completion of the Funding Timeline**

A grant report summarizing relevant outcomes established above, along with answers to the following questions:

1. What grade level of students is this project appliable for?
   1. Ex: High school or early college.
2. What are the lab space or spec requirements? Is there any other equipment necessary to complete the project? (Ex. 3D Printer.)
3. What is the cost per number of students/teams of students served? If the project requires modules, or sets of materials, how many are required? What is the cost per module or set?
4. How many class hours are needed to complete the project?
5. Which NFPA Core Competencies does this project include? What are other learning outcomes?

**Questions and inquiries can be directed to:**

Stephanie Scaccianoce

[sscaccianoce@nfpa.com](mailto:sscaccianoce@nfpa.com)  
VP, Workforce Development   
National Fluid Power Association