

NFPA Curriculum Grant Program

Budget: \$25,000. Total Number of Awards: 1

Award Period: 7/1/2017 – 6/30/2018

PROGRAM OBJECTIVE

- To create awareness and engage undergraduates in fluid power.
- To engage faculty in the development and teaching of fluid power.
- To develop, replicate and disseminate high-quality, high-impact university level fluid power curriculum.

SOLICITATION STRATEGY

- To leverage the fluid power curriculum development initiatives of the National Fluid Power Association's Education and Technology Foundation.
- To leverage the established academic fluid power network to broadly distribute the developed curriculum products and promote awareness.

CURRICULUM CATEGORY OF INTEREST

Design a Fluid Power Module for Core Engineering Curriculum

Funding is sought to support the design, development and piloting of (a) teaching module(s) to be integrated into existing mechanical engineering core curriculum in accredited programs throughout the United States. With a common suite of curriculum sets, sponsored and promoted through the NFPA, a large number of students are exposed to hydraulic and pneumatic systems, concepts and technology through core undergraduate courses. This module(s) will be part of a suite of textbook chapters and course activities that provide a comprehensive fluid power teaching tool for university instructors. Examples of such a module include the existing [*Fluid Power System Dynamics and Control*](#) mini-book written by Professors Will Durfee, Zongxuan Sun, and James Van de Ven at the University of Minnesota and work in-progress: "*Development of Fluid-Power Based Modules for Fluid Mechanics and Thermodynamics Courses Utilizing Problem-Based Learning and Entrepreneurially-Minded Learning*" module in development by Professor Liping Liu from Lawrence Technical University.

Area of Focus

The subject focus of this module is an introduction to fluid power components, circuits, and systems. The curriculum product must incorporate or introduce a systems engineering perspective to the material. Proposed work that includes a hands-on experience, the use of analytical tools, or translating application level requirements into fluid power system and component requirements will be considered favorable.

Requirements of Proposed Work

Elements of the module must include the textbook chapter or module, instructional materials, analytical problem sets, a simple evaluation mechanism, and a dissemination plan. It is

expected that the curriculum module will be used and assessed in an undergraduate course one semester either during or directly following the sponsored period. This initiative will include a plan to disseminate the activity (commitment from home university to incorporate module into core curriculum; ASEE podium presentation, etc.). NFPA will exercise its own promotion and broad dissemination of the fluid power curriculum once the module suite is complete.

PROGRAM TIMELINE

May 2017	Open Call for Proposals	Extend both a broad and targeted invitation to university community. Application Due June 9, 2017.
June 2017	Review Process	NFPA University Education Committee to review full proposals and provide recommendations.
July 2017	Grantee is Announced Funding Period Begins	Publicize awardees and planned projects. Awardees are issued funding, project is launched.
January 2018	Project Review	Mid-project review and evaluation. Report and/or presentation on project status.
June 2018	Final Deliverable Complete	

QUESTIONS

Submit inquiries to Alyssa Burger at alyssa@umn.edu.

APPLICATION PROCESS

Submit an Online Application

- Collects basic data on applicant, including previous work in course/curriculum development, fluid power education and/or research and instructing courses in mechanical engineering courses relevant to fluid power fundamental science

Upload a CV / Resume

Upload Proposal using Proposal Template

- Project summary
- Describe the educational goals and opportunity of the proposed work. What are the intended benefits, outcomes and deliverables? What direct or indirect impact will this project have on undergraduate students?
- How does the proposed work align with the curriculum track of the solicitation?
- Describe the development plan; provide a timeline of major milestones.
- Describe plans for sustainability and/or dissemination of the project.
- Describe mechanisms for assessment and ability to judge the impact of the proposed activity.
- List other sponsors, sources of support or programs to be leveraged during development of the project. *Short letters of support by other sponsors are encouraged.*
- Briefly describe the project team management plan (i.e. who are the various contributors to the project; what are their roles and responsibilities).

- Provide a detailed budget and budget justification. *Monies are awarded as undesignated funds. All funds are to be applied to the direct costs related to the project. Indirect costs are not allowed.*

I Agree Statement

- My project proposal is aligned with the NFPA's fluid power curriculum priorities. If selected, I understand monies will be awarded as undesignated funds. I understand this funding mechanism is awarded as a gift and will be applied to direct costs related to the project. Indirect is not allowed.