OPRPM Form 150
(07/2012)

# UNIVERSITY OF HAWAII
# NOTICE OF EXEMPTION FROM CHAPTER 103D, HRS

The President, University of Hawaii, is in the process of reviewing the request from Vice Chancellor of Academic Affairs, UH West Oahu (Department/Campus) for exemption from Chapter 103D, HRS, for the following goods, services, or construction:

Selection of an educational program that offers a comprehensive curricular and professional development program for science, technology, engineering and mathematics (STEM) related education which supports a network of school districts, colleges, universities, and public and private sector collaborators.

**Vendor:** (If known) Project Lead the Way, Inc.
**Address:** 3939 Priority Way South Drive
Suite 400
Indianapolis, IN 46240

| **Term of Contract:** (If known) | From: 5/20/2015 | To: 12/31/2016 | Cost: $13,394 |
|---|---|---|---|

**Direct any inquiries to:**
Department: UH West Oahu Vice Chancellor of Academic Affairs

Contact Name/Title: Sherry Proper
Interim Academic Program Officer

Address:
91-1001 Farrington Highway
D-201
Kapolei, Hawaii 96707

Phone Number:
(808) 689-2384

Fax Number:
(808) 689-2301

Date Posted: May 13, 2015

Submit written objections to this notice to issue an exemption from Chapter 103D, HRS, within seven (7) calendar days from the date posted to:

Office of Procurement and Real Property Management
1400 Lower Campus Road, Room 15
Honolulu, Hawai'i 96822

OPRPM Form 138
(Rev.07/2012)

## REQUEST FOR EXEMPTION FROM CHAPTER 103D, HRS

TO: OFFICE OF PROCUREMENT AND REAL PROPERTY MANAGEMENT

FROM: UH - West Oahu / Vice Chancellor for Academic Affairs
(Department/Program)

Pursuant to APM Section A8.220, the Department requests a procurement exemption to purchase the following:

Description of goods, services, or construction:
Selection of an educational program that offers a comprehensive curricular and professional development program for science, technology, engineering, and mathematics (STEM) related education which supports a network of K-12 school districts, colleges, universities, and public and private sector collaborators. UHWO intends to enter into an agreement to join the PLTW Network. As a result, UHWO will be required to purchase materials necessary to implement the PLTW curriculum. Term of the agreement: May 20, 2015 - December 31, 2016

Estimated Cost: $ 13,394 (see Exhibit C)

(1) Explanation describing how procurement by standard competitive means is either not practicable or not advantageous to the University;

Procurement by standard competitive means is not practical for this agreement which requires consideration of many subjective factors to provide a comprehensive curricular and professional development program for science, technology, engineering and mathematics (STEM) related education which is supported by a network of school districts, colleges, universities, and public and private sector collaborators. These factors include: 1) Proven effective K-12 teacher training in STEM disciplines conducive to Hawaiian values; 2) Successful establishment with elementary, high school, and university STEM programs; 3) Provide opportunities for Hawaii students to achieve scholarships/advanced college credit within the University of Hawaii and other affiliate universities; 4) Branding and marketing opportunities which highlights UHWO's success as a STEM educational university.

(2) Details of the process or procedures to be followed in selecting the vendor to ensure as fair and open competition as practicable;

see attached

(3) A description of the Department's internal controls and approval requirements for the exempted procurement; and

Expenditures will be subject to administrative review, approval, and processing in conformity with the specifications outlined in the agreement and the university expenditure policies and procedures. The affiliate agreement will be prepared with consultation and support from the Office of Legal Affairs and University General Counsel.

(4) A list of Department personnel, by position title, who will be involved in the approval process and administration of the contract:

Rockne Freitas - Chancellor, UH West Oahu
Doris Ching - Interim Vice Chancellor for Academic Affairs, UH West Oahu
Sheryl Proper - Interim Academic Program Officer, UH West Oahu

Direct questions to: Sheryl Proper Phone: 689-2384

I CERTIFY THAT THE INFORMATION PROVIDED ABOVE IS TO THE BEST OF MY KNOWLEDGE, TRUE AND CORRECT.

| | | |
|---|---|---|
| Doris Ching, Vice Chancellor for Academic Affairs<br>Full Name of Principal Investigator, Department Head, or Administrator | Doris Ching<br>Signature | 5-11-15<br>Date |
| Linda Saiki<br>Full Name of Fiscal Officer | Linda Saiki<br>Signature | 5/8/15<br>Date |
| APPROVED:<br>Rockne Freitas, Chancellor<br>Full Name of Vice President or Chancellor | Rockne Freitas<br>Signature | 5/8/15<br>Date |

**FOR OPRPM USE ONLY**

OPRPM COMMENTS:

X APPROVED _____ DENIED

David Lassner 5/28/15

PRESIDENT, UNIVERSITY OF HAWAII DATE

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UH-West Oahu / Vice Chancellor for Academic Affairs

(2) Details of the process or procedures to be followed in selecting the vendor to ensure as fair and open competition as practicable:

This strategic initiative is more than simply providing a training program for teachers, it represents best practices in STEM education and supports our University's strategic plan and our institutional mission. In line with our institutional growth and strategic vision for the future of our campus, UH West Oahu looked for an integrated approach to providing a STEM education program that would benefit the State of Hawaii, the students of Hawaii, and the University of Hawaii West Oahu to the greatest possible degree.

Through this institutional initiative, we are building our campus identity, our reputation, and our distinctiveness as a STEM-centered institution. This project has many facets, including partnerships with a premier STEM-education organization, prestigious university affiliates, and Hawaii public and private K-12 schools, as well as opportunity for articulation agreement with the Hawaii Department of Education for early college credit for students, national visibility and networking for our institution, and most importantly, opportunity to modify proven project-based STEM education for cultural relevancy to address our efforts to be a model indigenous-serving institution.

In our diligence in creating this program, we followed a process in researching and selecting a vendor that ensured as fair and open competition as possible. Specifically, we researched and conducted a critical analysis of many national programs to find the one that provided the best return on investment and which included the following key desirable components:

1. Proven effective K-12 teacher training in STEM disciplines using a project-based approach (conducive to Hawaiian values of tactile learning approaches);
2. Established success with elementary, high school and university STEM programs;
3. Opportunities for Hawaii students to achieve scholarships and/or advanced college credit both at UH West Oahu and other affiliate universities; and
4. University branding and advertising that champions UH West Oahu as a STEM education university.

In addition to Project Lead the Way, the other entities considered for this comprehensive initiative included the following (limitations found in the other programs are noted in italics):

- National Education Association
    - STEM Resources for Schools:
    - Science, Technology, Engineering & Math Resources for preK-12 *(resources available only to individual teachers who are members of NE;, not a concerted effort to move schools toward organized STEM education)*
    - Exploratorium *(in San Francisco only and online, no university affiliates/partners)* Provides interactives, web features, activities, programs, and events for K-12. Saturday and Summer professional development workshops are available through the Teacher Institute.
    - Educators
      Lesson plans, teacher guides, classroom activities, video clips, games, posters, and more for teachers and students in grades K-4, 5-8, 9-12, and higher

education. *(again, individual resources are provided but not organized for entire schools)*

- National STEM Video Game Challenge
  Middle school (5-8), high school students (9-12), and educators are invited to design games that incorporate STEM content or STEM themes in innovative and engaging ways. Home schoolers are eligible to enter as well. Sign up to be notified about the 2013 competition. *(no connection to college/universities)*
- Master Tools
  Eight interactive math and science tools and simulations for students in grades 6-12. All simulations and curriculum materials meet the new National Science Education Standards and National Math Education Standards. *(limited number of project-based tools)*

- PITSCO Education
  - Pitsco Education's professional development includes classroom resources, STEM content, and instructional methods designed to provide positive and productive learning experience and professional development that is relevant, engaging, and educational. Through a consultation process, the program designs seminars around STEM concepts. *(not a proven product, no consistency in approach among K-12 schools and universities)*

- UTeach
  - The UTeach Institute was established in response to national concerns about the quality of K-12 education in the areas of science, technology, engineering, and mathematics (STEM) and growing interest in the innovative teacher preparation program started in 1997 at The University of Texas at Austin (UT Austin). The UTeach Institute was established in 2006 to both support replication of UTeach at universities across the United States and to lead efforts toward continuous improvement of the UTeach model. The UTeach Institute has developed resources and support materials for all operational and instructional aspects of the UTeach model. Universities replicating UTeach receive direct and individualized support, including access to the *UTeach Operations Manual*; UTeach curriculum, student work samples, and support materials; and support events, including course workshops and retreats, topical Webcasts, the annual UTeach Conference, and UTeach Open House. Each university replicating UTeach also is assigned a site coordinator, who provides technical assistance and serves as a primary point of contact. *(This program is primarily for students who are not yet teachers. It does not encompass professional development for existing teachers, nor does it have opportunity for high school students to pursue scholarships and/or college credit at particular universities.)*

- NASA Endeavor
  - Endeavor focuses on the the change in teacher practice as the key to improving student performance in STEM area disciplines. Endeavor provides the comprehensive, online training that educators need to:
    - Effectively teach STEM content (e.g., science, mathematics);

- Integrate STEM pedagogical strategies (e.g., engineering design, science inquiry, math applications, instructional technology for understanding); and
- Enact change in their classroom.

  - Online Endeavor courses use the internet and a phone or headset at the same time for educators of STEM content at *any level, K-12*. This includes science and mathematics educators, STEM leaders or curriculum leaders, or anyone responsible for integrating math, science, technology, and engineering curriculum strands across grades K-12.
  - Endeavor participants may choose to complete coursework by developing electronic portfolios which also meet the portfolio requirements for earning National Board Certification. Options include work with Next Generation Science Standards and the Common Core, if desired. *(online only, no organized university partnership/affiliates, no opportunity for high school students to pursue scholarships and/or college credit at particular universities)*

- Naval Academy STEM Workshops for Teachers

  - The USNA STEM Office hosts a number of STEM Educator Training (SET) Workshops. A week-long training is offered in Annapolis two times during the summer, with additional one-day workshops offered at various times during the year. Training focuses on the use of project-based learning in topics such as design, chemistry, physics, math, simulation, biology, SeaPerch and engineering.
  - These workshops offer teachers an opportunity to engage more fully in their educational fields by exploring and testing ideas in a creative and hands-on environment. Experiments and learning assessments are led by faculty and staff members from a number of STEM departments. Teachers are encouraged to share best practices and application methods. *(Training is available at Annapolis only, no organized university partnership/affiliates, no opportunity for high school students to pursue scholarships and/or college credit at particular universities)*

In summary, we believe Project Lead the Way is the best match for Hawaii teachers (private and public), for K-12 students in Hawaii, and for the University of Hawaii West Oahu. We have evaluated it and have concluded that it is the best performance-based STEM training and education program option for the following reasons:

- Has had significant positive national impact (see attached PLTW impact report from November 2014 for numbers of students, teachers and universities involved in this program);
- Provides training programs used successfully at many affiliate universities in various K-12 areas: Launch, Gateway, Engineering, Biomedical, and Computer Science. See links for more information and brochures:
  - https://www.pltw.org/sites/default/vfiles/PLTW%20Launch%20Brochure_PL_1401.pdf
  - https://www.pltw.org/our-programs/pltw-gateway
  - https://www.pltw.org/our-programs/pltw-engineering
  - https://www.pltw.org/our-programs/pltw-biomedical-science
  - https://www.pltw.org/sites/default/vfiles/PLTW%20Computer%20Science%20Brochure_PC_1402.pdf;

- Proven to be desirable in Hawaii as we have over 50 Hawaii teachers ready to register for a PLTW training program this summer;
- Proven to be recognized as a quality program through funding by the following major corporations:
    - Lockheed Martin
    - Chevron
    - Kern Family Foundation
    - Autodesk
    - Hewlett-Packard
    - Intel
- Opportunity for UH West Oahu to join a prestigious list of colleges and universities that are PLTW affiliates, including the following examples (not an exhaustive list):
    - Duke University
    - Auburn University
    - Bucknell University
    - Cal Poly Pomona
    - California State University East Bay
    - Eastern Michigan University
    - Embry-Riddle Aeronautical University
    - Georgia Southern University
    - Iowa State University
    - Milwaukee School of Engineering
    - Minnesota State University
    - Mississippi State University
    - New Mexico State University
    - North Dakota State University
    - Oklahoma State University
    - Old Dominion University
    - Oregon Institute of Technology
    - Purdue
    - Rochester Institute of Technology
    - San Diego State University
    - San Jose State University
    - Seattle University
    - University of Montana
    - University of Colorado
    - University of Illinois
    - The University of Iowa
    - University of Kentucky
    - University of Maryland – Baltimore County
    - University of Nebraska
    - University of Nevada, Las Vegas
    - University of South Carolina
    - University of Texas at Tyler
    - Washington State University
    - West Virginia University
    - Worcester Polytechnic Institute
    - University of Minnesota

- Key research studies to support our decision to use PLTW:

- Researchers at the Center for Urban and Multicultural Education at the Indiana University School of Education at Indiana University-Purdue University-Indianapolis analyzed data for more than 56,000 Indiana high school graduates. Major findings:

- High school graduates who participated in PLTW were nearly three times as likely to major in STEM, and 3 to 4 times more likely to study engineering, versus non-PLTW graduates.
- Students who took three or more PLTW courses while in high school were six times more likely to study STEM, and eight times more likely to study engineering, in college than their peers who had not taken PLTW while in high school.
- PLTW participation was significantly related to persistence into the second year of college, especially for those students who had taken three or more PLTW courses.

(Pike, Gary and Kirsten Robbins (2014). Using Propensity Scores to Evaluate Education Programs. Indiana University-Purdue University-Indianapolis.)

- A Texas State University researcher collected and analyzed six years of longitudinally-linked student data to compare thousands of PLTW students to their non-PLTW peers. Major findings:
- PLTW enrollment in Texas has increased by over 400% over the last five years - Hispanic by over 500%; females nearly 600%; and low-income students by 650%
- PLTW students are more prepared for and attended Texas higher education institutions at a higher rate
- PLTW students scored higher on the state's mathematics assessment
- For those students who did not enroll in college, the median wage for PLTW students was 13.6% higher

*(Van Overschelde, James P. (Spring 2013) Project Lead The Way Students More Prepared For Higher Education. Texas State University.* American Journal of Engineering Education*, 4(1).)*

- A researcher from the University of Virginia, Dr. Robert Tai, and his team collected and analyzed over 30 research studies and reports on PLTW. Key insights:
  - PLTW contributes to a strong, positive impact on mathematics and science achievement;
  - PLTW has a positive influence on students' career interest and likelihood to continue their education;
  - PLTW offers a pathway to prepare and motivate students to enter careers in science and engineering;
  - A clear strength of the PLTW program is the intensive teacher professional development program;

*(Tai, Robert H. (2012). An Examination of Research Literature on PLTW. University of Virginia. Publication by PLTW.)*

- According to a survey of PLTW students at the end of their senior year, 70% indicated that they intend to study engineering, technology, computer science, or another applied science, and 93% intend to pursue at least a two-year or four-year degree after high school.
- In addition, many post-secondary institutions across the country actively recruit PLTW students and provide recognition opportunities such as preferred admissions, scholarships, and course credit. Several prestigious engineering universities report high and increasing levels of PLTW student enrollment. For example:
    - 60% of the 2013 incoming freshman class at the University of South Carolina College of Engineering and Computing took PLTW in high school.
    - PLTW alumni account for over 35% of the students who were admitted in 2014 to the University of Minnesota's College of Engineering.
    - 47% of the Milwaukee School of Engineering's 2014 freshman class previously took PLTW courses.

Recent Honors and Recognitions

- In January 2014, PLTW was accepted as a 100Kin10 partner. As a partner, PLTW will train 27,602 teachers by 2018 to teach interdisciplinary STEM courses, with typical teachers seeking certification in two or more courses.
- In October 2013, Change the Equation selected PLTW as one of four high-quality STEM programs in the U.S.—and the only in-school curriculum provider—ready for significant national scale-up.
- The Social Impact Exchange placed PLTW on the S&I 100 Index in 2012 as one of the top 100 high-impact nonprofits in the United States.
- The PLTW Gateway program was selected as one of nine Iowa STEM Scale-Up Programs by the Iowa Governor's STEM Council for 2013–2014.
- PLTW was one of seven programs to receive the @Scale endorsement from the Massachusetts Governor's STEM Advisory Council.

**EXHIBIT C**

Materials & Supplies

| Item Name | Item # | Item Description | Cost per unit | Quantity * | Total | Total Participants Covered | Comments |
|---|---|---|---|---|---|---|---|
| **LAUNCH** | | | | | | | |
| Complete Kit | PLTW 220-4512 | Affiliate Core Training Full Kit | $450.00 | 1 | $450 | 30 | Durables & consumables |
| Launch Logs | PLTW 220-K3SF | Function: The Human Body - 1 pack of 5 | $10.00 | 5 | $50 | | |
| Launch Logs | PLTW 220-3989 | Modules (3.1 through 5.4) - 1 pack of 5 | $10.00 | 5 | $50 | | |
| Vex IQ Robot Design Kits | PLTW 228-3303 | | $120.00 | 10 | $1,200 | 24 | 7 kits recommended per 24 participants |
| Total Launch Program | | | | | $1,750 | | |
| **GATEWAY - AR Program** | | | | | | | |
| VEX GTT Kit | PLTW SSO GTT kit | | $1,075.00 | 4 | $4,300 | 20 | 4 kits recommended per 20 participants |
| Performance Tool Kit | PLTW | | $51.00 | 2 | $102 | 1 | Recommend to have 2 on hand |
| Base Plates 30"X15" (2pack) | PLTW | | $30.00 | 5 | $150 | 20 | Durable - replenish as needed |
| Total Gateway AR Program | | | | | $4,552 | | |
| **GATEWAY - *DM* Program** | | | | | | | |
| Wood Blocks (set of 10) - Blocks are based on 1 1/2" dimensions and are made out of pine. Each set consists of seven (7) cubes, one (1) cube with a 3/8" through hole, two (2) triangles, one (1) cylinder, and one (1) half cylinder. | PLTW Blocks | | $79.00 | 5 | $395 | 3 per class | Duarable - one time purchase |
| Total Gateway DM Program | | | | | $395 | | |

Total Estimated Materials & Supplies per Summer: $6,697

Summer 2015 & Summer 2016 Total Cost: $13,394

* Quantities may vary depending on actual number of participants