October 28, 2013

TO: Norcen Yamane, Chancellor
Hawaii Community College

SUBJECT: Career & Technical Education Award

Hawaii Community College is awarded $79,745 in 2012-13 Title I Career and Technical Education Carryover funds to support the titled project:

Virtual Welder System $79,745

The award period for the project is from July 1, 2013 to June 30, 2014 and the award number for the project is: HAW2012/13(2)-T1-09 and should be referenced on all future correspondence and reports. These funds must be expended and goods received by June 30, 2014. A completion report is due on October 10, 2014.

Please call Dominic (Nic) Estrella at 956-3865 if you have questions.

Sincerely

Peter Quigley
Assoc. Vice President for Academic Affairs

Cc: J. Onishi, VCAA
    J. Yoshida, VCAA
    J. Hamasaki, CTE Dean
    N. Kanoho, FA
    L. Tshuako, FA
    S. Robinson, Dir. of Academic Programs
6. Proposal meets the following requirement for uses of funds or permissible use of funds (see Appendix section on page 8 from UHCC College Plan Guidelines for FY 2013-14 (also describe how it meets this criterion):

The Machine Welding and Industrial Mechanics (MWIM) Program outcomes are deeply rooted in many technical trade careers. The vast array of MWIM applications is found in the automotive, building/construction, energy, aeronautic, marine as well countless specialty industries. This grant request addresses the core of the MWIM Program; welding technology and application. The Virtual Welder System not only lessens the cost of consumables and welding machine upkeep, but presents students instantaneous feedback on their performance and progress.

Through the interest generated at the secondary level (metals/industrial arts exploration courses), the science behind the welding process can be demonstrated repeatedly through safe, fume free, low cost exercises using this high technology tool.

The welding skill utilizes knowledge, critical thinking, hand eye coordination and concentration. To become a proficient welder, practice is the paramount. Assessment and adjustments are required to consistently and constantly improve, especially if welding certifications are to be successfully obtained. The Virtual Welder provides all of the above without the majority of the drawbacks associated with prolonged and/or frequent practice sessions. Instructors would be aided by having standards and goals attainment, authentically assessed, noted and stored. Critical data that could not be obtained, unless tediously tested, can now be downloaded and evaluated, resulting in specific, objective performance feedback.

The Generation Y and Z demographic have grown up surrounded by the technology that has created such a powerful tool. Though the actual function replicates the manual dexterity of a regular welding machine, features and operation which is not possible with standard welders would be readily accepted by the generation targeted by this industry. The technology enables those that may be hesitant at first, because of the fusion action, to build confidence and get a head start before actual tasks are required. Female
students will be more likely to “take the first step” knowing that this machine requires more finesse than brawn, without the sparks, smoke and heat of traditional welding training.

7. Brief Statement of identified problem area and reason for selection:
   a) Provide relevant program and/or college data to support the need to address this problem.
   b) Describe alignment of problem to one or more Perkins Performance Indicators, and as appropriate, goals from the UHCC Strategic Plan, Achieving the Dream, and/or other UHCC projects. (See page 2 - 4 of Instructions from UHCC College Plan Guidelines for FY 2013-14).
   c) Include narrative that is supported by data. Be brief and succinct.

Though the MWIM program’s 2011-2012, 1P1 Technical Skills Attainment; Actual Level of Performance score of 91.67% exceeds the Adjusted Level of Performance (90%), the expected performance improvement of the Virtual Welder is expected to help elevate the average Hawaii Community College’s CTE score (87.63%).

Though the MWIM Program has met/exceeded numerous performance indicators, there are other areas where the strategy is expected to boost scores. 2P1, Gender and Individuals with Disabilities, 3P1, Gender and Individuals with Disabilities, 4P1 Gender, Individuals with Disabilities and Nontraditional Enrollees, 5P1 Nontraditional Participation, 5P2 Nontraditional Completion, may have better success rates due to the instantaneous, specific feedback that is required to quickly attain the basic skills of welding before using the actual welding machine.

8. Brief Strategy Description: (Be succinct)
   • Answer the question: What do you want to do based on information provided in item #7 above?
   • If this strategy is a continuation of a current strategy, indicate rationale for continuance.
   • Include supporting data i.e. effectiveness measures. Data on student needs, student impact (number served last year and anticipated number to be served in current year), and effectiveness must be provided below.
   • Evidence of industry support.

The virtual welding system uses similar cognitive and manual dexterity tasks that have proven its worth in flight simulators for pilots. The strategy is to use this type of technology to quickly and effectively give students a head start on the use of the welding stinger/rod set up. Upon completing the task, the machine will provide students pin point assessments on numerous points of their technique. Assessment will be continuous throughout the semester, assisting students to reach the stated course objectives

Students will be able to practice in a safe environment. Eliminated are ultra violet rays, toxic smoke, melted splatter, and the super-heated metal parts. These hazards are
considered for user, by-standers, and environmental.

Finally, aside from the cost of electricity, this system saves cost by eliminating welding rods, metal coupons and wear and tear of the welding machines.

Authentic effectiveness measures would happen after the first year of implementation of the machine. The instructor would compare rubric scores that assess progression of welding skills. The impact would allow students to reach objectives sooner at higher skill levels.

Included in the total cost are upgrades that are required to complete assessments in American Welding Society certifications. They are specific to certain industry applications.

The use of virtual trainers is becoming standard procedures in many fields. Pilots, heavy equipment operators, auto body painting, to name a few, rely on some kind of virtual training tool. Honolulu Community College received a similar machine from the Weld-Ed Program, National Center for Welding Education and Training.

9. Calendar of Planned Activities: (add or delete rows as appropriate)
In chronological order, briefly describe the procedures/activities planned to achieve stated goal(s) or outcome(s)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Month(s) the Activity will take place</th>
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<tbody>
<tr>
<td>Purchase equipment</td>
<td>October-November 2013</td>
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<tr>
<td>Accept delivery. Set up, faculty training, finalize assessment rubric</td>
<td>November-December 2013</td>
</tr>
<tr>
<td>Utilize machine for student learning and collect assessment data</td>
<td>Spring semester 2014</td>
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10. Effectiveness Measures: (Refer to the identified problem – item #7), and describe the anticipated quantitative outcomes expected from the implementation of the strategy. Where appropriate, indicate the effectiveness measures that will be reported after year one, year two, etc.)  **State the effectiveness measures clearly and in assessable terms.** The outcomes stated here must be addressed later in the completion report. Confer with your IR office to ensure the appropriateness of the measurement of outcomes.

Students enrolling in the MWIM program in Spring 2014 will be trained on the virtual welding system. The computerized system will assess student competency using standard guidelines for the course, with a 100% completion rate.

After the first year the 1P1, Technical Skills Attainment Indicator will be 90% at the college as well as program level (reaching the Adjusted Level of Performance, 2011-
This forecast is based on one cohort using the new system and the other cohort using the existing methods. After the second year, when both cohorts have been through the new system, the program rate is anticipated to be 93%, with a 1% gain at the college level.

Assessments will be attained for both first and second years. The first year will cover initial introduction of SMAW welding techniques, whereas second year assessments will quantitatively measure, SMAW, TIG, and MIG progress including meeting certification requirements.

Due to increased student satisfaction and successes, the Credential, Certificate or Degree will meet the 50% goal, and Retention Indicators will exceed the 74.25% goal by ten percentage points.

Program cost will be reduced by 20-25% due to reduced consumable expenditures (welding rods and metal coupons). Safety will be substantially higher and environmental concerns, lower.

11. Budget Summary  (Double click to activate worksheet. Scroll back to top when done and click outside the sheet). Itemize all items $500 and over.
### Fringe Benefits (List per position)

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### Personnel Subtotal

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<th>Services</th>
<th>Material &amp; Supplies</th>
<th>Travel</th>
<th>Rentals</th>
<th>Other</th>
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### Equipment

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### TOTAL COSTS

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### Fringe Benefit Rates (as of)

- Faculty/Staff: 44.91%
- Casual Hire/Overload: 2.26%
- Student: 0.51%

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12. Budget Elements:

- Personnel - Please include a short description on all proposed personnel to be paid for by these funds. The description should include the FTE, if the hire is regular or casual, title (counselor, lecturer, APT, etc.), their job duties that will benefit the project (cite narrative), the monthly salary and fringe, and the number of months of funding. Please take into consideration the recruitment time for new hires.

NA

- Material & Supplies - Itemize supplies purchased that cost more than $500 and have a shelf life of 1 year or longer.

NA

- Travel – Breakdown the estimated cost including airfare, lodging, per diem, conference fees, and ground transportation. Include the conference name, description, location, and dates. If possible, include conference flyer and/or agenda.

NA

- Services – If you know the name of the specific vendor you would like to hire, please include. Also a breakdown of service cost (cost per day, hour, etc.)

NA

- Other – Includes items such as software, printing, rentals, etc. Each item must be listed and described as to how it will enhance the project.

NA

- Equipment, whose description is an article of nonexpendable, tangible personal property having a useful life of more than one year and an acquisition cost which equals or exceeds $5,000.

1. Basic Model VRTEX 360………………………………………………….$58,880.00
2. Software Upgrade (Certification)………………………………………….$4,800.00
3. Software Upgrade (GMAW Aluminum Instruction)……………………$4,800.00
4. Software Upgrade (GMAW Stainless Steel Instruction)………………$4,800.00
5. Software Upgrade (Safety Curriculum)…………………………….……$1,275.60
6. Shipping……………………………………………………………………... $ 2,000.00
7. Training……………………………………………………………………….$ 0
8. Tax…………………………………………………………………………... $3,189.10

Total……………………………………………………………………………….$79,744.70
13. Indicate which Perkins requirements are covered by this proposal? (Check no more than three categories that best describe your proposal):

<table>
<thead>
<tr>
<th></th>
<th>1. Building of the efforts of States and localities to develop challenging academic and technical standards and to assist students in meeting such standards, including preparation for high skill, high wage, or high demand occupations in current or emerging professions</th>
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<tr>
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<td>2. Promoting the development of services and activities that integrate rigorous and challenging academic and career and technical instructions, and that link secondary education and postsecondary education for participating career and technical education students</td>
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<td>3. Increasing State and local flexibility in providing services and activities designed to develop, implement and improve career and technical education, including tech prep education</td>
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<td>4. Conducting and disseminating national research and disseminating information on best practices that improve career and technical education programs, services, and activities</td>
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</table>
|   | 5. Providing technical assistance that –  
|   |   (a) Promotes leadership initial preparation, and professional development at the State and local levels; and  
|   |   (b) Improves the quality of career and technical education teachers, faculty, administrators and counselors |
|   | 6. Supporting partnerships among secondary schools, postsecondary institutions, baccalaureate degree granting institutions, area career and technical education schools, local workforce investment boards, business and industry, and intermediaries |
|   | 7. Providing individuals with opportunities throughout their lifetimes to develop, in conjunction with other education and training programs, the knowledge and skills needed to keep the United States competitive |

14. Certifications:

I certify that this proposal, budget, and certifications are accurate and complete and that this project will be conducted in accordance to Perkins Policies, Federal, State, and University requirements. I certify that this proposal has been reviewed by the fiscal office.

Proposer’s Signature: ____________________________________________