



UNIVERSITY OF HAWAI'I SYSTEM

ANNUAL REPORT

REPORT TO THE 2007 LEGISLATURE

Annual Report on
The Construction Initiative

Act 234, SLH 2006

December 2006

THE CONSTRUCTION INITIATIVE BACKGROUND

In session 2006, the Hawai'i State Legislature passed Senate Bill 2980 SD2, HD1, CD1, which appropriated \$5.4 million to expand the Construction Academy to other public high schools on O'ahu, as well as, on the islands of Kaua'i, Maui, and Hawai'i, and, to increase Apprenticeship Training at Honolulu, Hawai'i, Kaua'i, and Maui Community Colleges.

The Construction Academy began in 2004 with a \$1.4 million grant from the U.S. Department of Labor. This grant started a pilot program whereby the University of Hawai'i's Honolulu Community College (HCC) partnered with eight Department of Education high schools on O'ahu—Kahuku, Kailua, McKinley, Mililani, Pearl City, Radford, Waipahu, and Waiialua—to prepare high school students with the technical, academic, and employability skills necessary to pursue a career in the construction industry. The initial results of this federally funded academy model displayed such great potential that in late 2005 many associated with education and construction felt it warranted expansion.

By late 2005, the construction and building industry found itself in a dire situation. Construction projects and developments could move no faster unless there were more qualified workers for the job sites. In late 2005, the industry approached HCC to request its assistance in educating and training a greater number of qualified construction workers. In a true industry-education partnership, HCC, with its experience in the pilot Construction Academy as well as its long history in Apprenticeship Training, developed a comprehensive proposal (the "Construction Initiative") that encompassed both high school education (Construction Academy) and post-high school career training (Apprenticeship).

THE CONSTRUCTION ACADEMY

Our mission is to prepare high school students with the technical, academic, and employability skills necessary to pursue a career in the construction industry.

From servicing over 200 students during the 2005–2006 school year, the Construction Academy has grown to a capacity of over 900 students statewide, with anticipated increases next year as the program develops and expands to other schools. While in this pre-apprenticeship program, students actively participate in an integrated classroom setting that promotes the use of math, reading, and writing skills as they engage in building and construction activities. At the end of the course, students build real world projects such as children’s playhouses and storage sheds to test the skills they have learned throughout the year. This hands-on approach to learning requires students to apply skills in math, communication, construction technology, problem solving, and most importantly, teamwork.

As a pre-apprenticeship program, the Construction Academy has established two goals directly related to the intent of Senate Bill 2980. The goals of the Construction Academy are:

1. 50% of construction academy students will pursue a career in the construction industry, upon graduation from high school
2. 50% of Construction Academy students will attain the math skills necessary to enter a construction-related apprenticeship or community college program.

These goals are designed to measure the success of the program. The term “pursue a career in the construction industry” will include those students who enter apprenticeship programs, community college programs, or enter directly into entry level construction related jobs. Goal two is in response to the 40 percent failure rate of applicants who take the entrance math exam for the HCC Apprenticeship Program. It is imperative that our students master the fundamentals of math if they wish to pursue an occupation in the construction industry.

Information will be gathered through an end of the year survey to ascertain the intent of seniors graduating from the program. Contact information will be collected prior to high school graduation with follow up surveys being conducted in October through November in an attempt to track actual placement beyond high school.

The Construction Academy has identified five high school courses that give students the opportunity to earn dual credit—high school and community college credit. In order to earn community college credit, students must receive a grade of “B” or higher. College credits can be applied toward community college degrees such as *Carpentry*; *Electrical Installation and Maintenance Technology*; and *Architectural, Engineering and CAD Technologies*.

A statewide meeting was held on November 17, 2006 with participants from Hawai‘i, Honolulu, Kaua‘i, and Maui Community Colleges to discuss course articulation between the Department of Education and each community college; and among the four community colleges. As a result of this meeting, each community college identified courses from their campus’ current curriculum that can articulate with the Construction Academy’s high school courses. If a course equivalent could not be found, the community college representative was charged with the responsibility of recommending, to his/her home institution, that the community college do one of the following: 1) adopt a course that is currently articulated at one of the other community colleges; 2) design a new course; or 3) opt not to offer that particular high school Construction Academy course as a part of their curriculum. Horizontal articulation between the community colleges was also discussed which will allow Construction Academy students to apply the community college credits earned toward degree programs at one of the other institutions (Hawai‘i, Honolulu, Kaua‘i, and/or Maui Community College). When course equivalencies are solidified, an articulation agreement between the four community colleges will be created.

The potential for growth of the Construction Academy is promising. Several high schools who are currently not participating in the Construction Academy program have indicated an interest in joining the academy in school year 2007-2008. Neighbor island campuses in particular have limited participation due the fact that DOE registration had occurred prior to the signing of Act 234. Many schools did not have students enrolled in the appropriate courses necessary to implement the academy program. The table below presents a

summary of the total number of students enrolled in the Construction Academy program throughout the state. Demographic data is also provided to identify the student population that is being served by the academy program.

CONSTRUCTION ACADEMY PARTICIPATION SUMMARY
Fall Semester 2006

Community College	Hawaii	Honolulu	Kauai	Maui	Total	Percent
Participating High Schools	3	14	3	7	27	
Courses						
Building & Construction 1	31	415	n/a	82	528	54.2%
Building & Construction 2	n/a	54	n/a	2	56	5.7%
Mechanical Drawing	n/a	87	n/a	0	87	8.9%
Drafting Technology 1	11	97	n/a	85	193	19.8%
Electricity and Electronics	n/a	111	n/a	n/a	111	11.4%
Total	42	764	0	169	975	100.0%
Gender						
Male	35	695	n/a	154	884	90.7%
Female	7	69	n/a	15	91	9.3%
Total	42	764	0	169	975	
Special Population						
Special Education	2	76	n/a	n/a	78	9.7%*
English Language Learner	1	37	n/a	n/a	38	4.7%*
Economic Disadvantaged	13	157	n/a	n/a	170	21.1%*
Total	16	270	0	0	286	35.5%*

*Percentages are based on participant totals of Hawaii and Honolulu Community Colleges.

The statewide implementation of the Construction Academy model has been exciting as well as challenging, especially since less than six months ago (July 2006) program expansion commenced to include more high schools on O’ahu and the neighbor islands. Remaining flexible to the individual needs of each high school and its surrounding communities have been an essential element of implementation. The following status reports from each community college will provide a clearer picture of the level of implementation statewide as of the end of November 2006.

HONOLULU COMMUNITY COLLEGE

The 2007 general fund appropriation allowed Honolulu Community College to expand the Construction Academy participation from eight to fourteen schools with over 700 students enrolled in the program for the 2006–2007 school year. Two additional high schools—Kaimuki and Castle—are expected to join the academy during the next school year. Efforts are currently under way to promote the Construction Academy in anticipation of high school pre-registration for the 2007-2008 school year, taking place between December and January.

Positions:

	FTE Position Allocated	FTE Position Filled
Home-Based Instructors:	16	*14
Traveling Instructors	4	4
Administrative Profession Technical	1	1
Clerical	1	1
Instructor, Cooperative Education	1	**
	23.00	20.00

*One of the 14 positions filled have a January 2, 2007 start date.

**Position held vacant; funds used to support an Interdepartmental Agreement with DOE to temporarily assign a DOE employee to Honolulu Community College. This person will assist with the implementation and integration of this program.

Activities Conducted

- A professional development workshop provided training for 30 Department of Education (DOE) teachers and 15 community college instructors which was held from July 14–21 at Honolulu Community College. This workshop introduced Construction Academy instructors to the standards and curriculum for the program's courses. Staff development has been ongoing throughout the school year.
- A *Professional Evaluation Program* for Construction Academy faculty has been developed to integrate the high school principal's evaluation with the community

colleges' contract renewal processes. A training session was conducted for Construction Academy faculty on this evaluation process.

- The Academy identified and purchased the ACT[®] ASSET numerical skills test to be used as a pre- and post-assessment. This assessment will help to determine the program's effectiveness in improving the students' math skills. As previously mentioned, about 40% of the individuals applying for the college's apprenticeship program do not pass the entrance math exam. Since this assessment is currently being used as a placement test by another program at HCC, cut-off scores have been established and can be correlated with general mathematical areas of performance that students will be expected to know upon entrance into the apprenticeship and building and construction degree programs. The math pre-test was administered in October and November with the post-test to follow in May 2007.
- A portfolio assessment system has been developed to document student achievement of the Construction Academy's standards. Over 700 portfolios were printed, assembled, and distributed to participating high schools.
- A proposal is currently under review by the UH Institutional Research Office which defines the admissions and records policies for Construction Academy students, statewide. To facilitate this process, meetings have been held with HCC administration and representatives from the college's admissions and records offices to find the most feasible way of accomplishing this task. The challenge has been bridging the current infrastructure of the UH student management system (Banner) and the university's current admissions and records policies and procedures with the unique nature of the Construction Academy and its students such as the DOE's year-based courses versus the university's semester-based courses and the program's "conditional" grading policy.
- An evaluation of classroom laboratory facilities was conducted by Construction Academy instructors to assess the equipment needs of all participating high schools. Upon this assessment, recommendations were made on the types and quantity of equipment that were needed to effectively operate the workshop.

Next Steps:

- Results of the ASSET pre-test will be shared with each school. Instructors will use the assessment results to address specific areas in mathematics that students performed poorly in. This will help instructors tailor their lessons in such a way that they will be able to engage students in integrated, construction-related activities which demand the application of math skills and concepts. Post math assessment will be conducted in May 2007. An analysis of the results will be included in the 2007 legislative report.
- Staff development of instructors will continue to aid in the development of instructional units and lesson plans to improve the effectiveness of the Construction Academy curriculum.
- An internship program will be established to incorporate work-based learning experiences for Construction Academy students.
- An HCC Construction Academy Career Day in partnership with the community college, local apprenticeship programs and private industry. Academy students will be exposed to the various programs and trades of the construction industry.
- The admissions and records processes and procedures will be finalized to assure that all students enrolled in Construction Academy courses are awarded college credits earned.
- A counseling and advisement program will be developed to work to work closely with high school counselors and registrars to assure a smooth transition to the university system for all students enrolled in Construction Academy courses.

HAWAI'I COMMUNITY COLLEGE

Hawai'i Community College energetically supports the offering of construction academy courses at all public high schools on the island. With the signing of Act 234 by the Hawai'i State Legislature on June 23, 2006, funds to establish Construction Academies were appropriated just 35 days before the public high schools started classes. The college immediately responded; finding and hiring quality instructors and identifying schools, recognizing the value of this opportunity, able to recruit students for newly added courses.

Kealakehe High School in West Hawai'i and Laupahoehoe High School on the Hamakua Coast were first, offering two sections each of Building & Construction, the introductory course in the academy curriculum. Waiakea High School in Hilo was the next to join, adding Drafting Technology as an after school option starting in September 2006.

Positions:

	FTE Position Allocated	FTE Position Filled
Home-Based Instructors:	6	3*
Traveling Instructors	2	2*
Counselor	1	
Clerical	1	**
Coordinator (Allocated as a 7 th home-based instructor)	1	1
	11.00	6.00

*Hired as lecturers while official recruitment process is conducted
(start date for one position is 3/1/07)

**In Process

Activities Conducted

- Department of Education courses have been articulated with Hawai'i Community College courses as shown below. Courses are also being articulated with other UH community colleges. This enables high school students earning a "B" or better to receive high school and community college credit simultaneously.

High School Course	Articulated Hawai'i CC Course
<u>TIU 5800</u> —1 <i>elective credit</i> Building & Construction	IEDB 20 – 3 <i>credits</i> Careers in Building & Construction (counts as a social science elective, a requirement for all A.A.S. degree programs)
<u>TIN 5810</u> —1 <i>elective credit</i> Building & Construction 2	CARP20A - 3 <i>credits</i> Basic Carpentry I (a requirement for the carpentry program)
<u>TIN 5310</u> —1 <i>elective credit</i> Drafting Technology	BLPR30F - 3 <i>credits</i> Blueprint Reading for Carpenters; or BLPR 22 - 3 <i>credits</i> Blueprint Reading and Drafting; or AEC 80 - 3 <i>credits</i> Basic Drafting, 3 <i>credits</i> ; or BLPR 30D - 3 <i>credits</i> Blueprint Reading for Machine Trades (all are required courses for the applicable program)

- In the aftermath of the October 2006 earthquake, the Construction Academy hosted a workshop on stabilizing structures, making them more capable of withstanding earthquake forces. Over 20 participants constructed mock-ups for classroom use, illustrating retrofit techniques and the continuous load path model.
- An after school program for students interested in Drafting Technology was started in September 2006 and will run the remainder of the academic year.
- Instructors participated in a professional development workshop July 14-21, 2006. An additional two-day professional development workshop was held during the Department of Education's fall break to help instructors develop lesson plans.
- A portfolio assessment system is being used to document student achievement of curriculum standards.
- Recruitment for the 2006-07 academic year is ongoing. High schools on the Big Island have been visited and facilities evaluated to determine needs. Purchases of

equipment and recruitment of instructors will occur third and fourth quarter for schools scheduled to participate starting fall 2007.

- Collaboration with school principals has resulted in culminating projects that will benefit the schools.

Next Steps:

- Field trips for participating high schools are being planned for May 2007 so students can tour the Hawai'i CC model home and visit the college campus.
- Instructors will participate in a week long workshop summer 2007 to develop teaching skills and increase awareness of federal and state regulations applicable to community college instructors teaching at the high school level.
- The college will standardize pre and post test procedures for students enrolled in the Construction Academy courses and investigate the desirability of their taking the Compass placement test during their junior year.
- The college will develop procedures for tracing students enrolled in construction academy courses.
- The college will actively explore opportunities to improve student achievement, to incorporate best practices and integrate activities and programs especially in the areas of reading, writing, and math. It will continue to work in partnership with high school instructors, registrars, and counselors to recruit students for the construction academy and assist in the development of abilities that will enable them to enter college and the work force at a higher, more qualified skill level.

KAUA'I COMMUNITY COLLEGE

Advertising for the positions began in April. On August 1, 2006 a coordinator and a traveling instructor were hired to make the necessary changes on campus and to introduce the Construction Academy program to the high schools. Recruitment for the instructors at the high schools is ongoing providing unique challenges of bringing on board qualified individuals that have the skills of the trades and the patience necessary in working with the students. We are experiencing an uphill challenge with instructor recruitment, and are looking into the possibility of several part time instructors to fulfill our commitments. This we feel would have additional benefits of acquiring individuals with different areas of expertise.

Implementation in the high schools is underway and has now included all three schools, Kauai H.S., Waimea H. S., and Kapaa H.S. Initially we were involving two schools, Kauai and Waimea, however, with additional information and meetings we have all of our public High Schools on board with the program. We are working closely with the district level Technical Education Resource Teacher, the principals, and the industrial arts teachers to introduce the Construction Academy program to their schools and the students. Agreement contracts have been distributed to the high schools and terms are being defined.

Assessment of the three schools has taken place and equipment inventory needs for the program are being generated. It is clear that each school's needs are individual, based upon the facility, the existing programs, and the teachers.

Our work has been focused on two basic objectives, first, alignment of the curriculum and standards and second marketing the program and recruiting students.

We have met with the schools to introduce the Construction Academy curriculum and standards to the High School DOE teachers and are having them assist us in evaluating their lessons for including the standards within each course.

We are also working with the trades unions and have their support in assisting us with the program. They will be working with us to bring in representatives from the various trades and providing real world experiences for the students throughout the program.

Spring Semester 2007:

We are aligning our courses at the community college to the standards of the program for articulation between the High Schools and the community colleges. In addition we are focusing on the second part of the goals of the Construction Academy in having an up to date program at the college level here in Kauai for those students seeking a construction related program at the community college level.

During the upcoming semester we will be outfitting the high schools with the necessary tools, equipment, and materials. Training the DOE teachers from each of the high schools and our assigned instructors for the schools in the curriculum and standards assessment of the Construction Academy is to be accomplished during this time to be ready for the fall 2007 semester. We are initiating introductory classes this spring at each school, to provide the students a positive experience with the Construction Academy. This effort will in addition, work on our recruitment of students into the program.

MAUI COMMUNITY COLLEGE

The 2007 general fund appropriation allowed Maui Community College to implement the Construction Academy program in Maui County. All seven high schools on the islands of Maui, Molokai, and Lanai are taking part in the program, with a total of approximately 169 students enrolled. Since the Maui County Construction Academy program was funded and implemented after 2006-2007 high school registration had taken place, a higher enrollment is anticipated for the coming year. Efforts are currently underway to promote the program so that students will be fully aware of it during the pre-registration for 2007-2008.

Positions:

	<u>FTE Positions Allocated</u>	<u>FTE Positions Filled</u>
Home-based Instructors	4	*3
Traveling teacher	1	1
Clerical	1	*1
Counselor	1	*0

***Note:** The clerical position is being filled on a temporary basis until a qualified person can be found to fill it on a full time basis. Recruitment is ongoing for that position and for the counselor position. An applicant is being interviewed for the unfilled instructor position.

Activities Conducted:

- Attended professional development training held at the Honolulu Community College; instructors trained (along with DOE instructors from the seven participating Maui County high schools) on the standards and curriculum for Construction Academy courses.
- Conducted needs assessments of the seven Maui County high school classrooms and shops to evaluate what supplies and equipment would be needed in order for students to successfully complete the Construction Academy program.

- Arranged for and coordinated presentations to four Maui high school students by representatives of the carpentry, electrical, and labor unions; plans are underway for similar presentations at Hana, Molokai, and Lanai high schools.
- Met regularly with DOE principals, instructors, and administrators; reported progress and communicated about standards and goals for the Construction Academy; made plans for the future; answered questions.
- Shared professional construction expertise with students and instructors in the seven high school classrooms and shops; formed working partnerships with DOE instructors.
- Assisted in the renovation of one high school shop that had been unused for over two years; installed appropriate equipment and tools for Construction Academy curriculum, making it possible for students to complete their classes, including the designated final project, by the end of the semester or year.
- Ordered and oversaw the delivery of appropriate wood, tools, and equipment to partially satisfy Construction Academy curriculum needs at the seven high schools on the three islands; remaining funds will be designated for the highest priority needs in the seven high schools.
- Repaired and maintained equipment in high school shops and labs.
- Remodeled MCC storage space into offices for Construction Academy clerk and counselor; instructors will share the space as needed.
- Shared experiences, successes, and challenges at weekly meetings of Construction Academy instructors and CTE/Voc Tech department chair; discussed ways to improve the program; implemented changes as needed.

Next steps:

- Purchase and deliver as many priority tools and supplies as remaining funds will allow, making it possible for students in each of the seven high schools to complete their final projects.
- Ensure that all high school Construction Academy students who qualify are enrolled in the MCC student information system so that they will be able to receive college credit for successful completion of courses.

- Complete hiring process for unfilled positions; continue to assess and improve all facets of the program.

APPRENTICESHIP

The second component of the Construction Initiative is to improve and expand apprenticeship training. The University of Hawaii Community Colleges currently administer the related instruction portion of apprenticeship training for most of the non-union and union construction industry apprenticeship programs. Substantial increases in apprenticeship enrollments in recent years have strained the campuses' personnel resources, facilities and equipment and continued significant increases are anticipated in the coming years. Additional funding was needed to more adequately meet current and future industry demands for training. As such, the general fund appropriations included allocations for support staff, lectureship costs and supplies and equipment.

Support Staff

With apprenticeship enrollments exceeding 3,000 at Honolulu Community College, an additional staff position was needed in the Records office to assist the Registrar with attendance and grades and in generating reports such as cumulative earned hours, which are used by apprenticeship coordinators to track their students. The position will also assist with registration and explore ways to streamline and improve data gathering and reporting processes. Hawai'i CC, Kaua'i CC and Maui CC have smaller apprenticeship programs and will consequently obtain support from other existing departments on their respective campuses to satisfy these requirements.

Lecturers

Apprenticeship enrollments have increased significantly on all campuses in recent semesters and dramatic increases are anticipated in Spring 2007. For example, at Honolulu Community College, the Hawaii Laborers Training program will begin offering their classes through the College. So in addition to the ever-increasing enrollments from current programs, it is anticipated that new training partnerships will further impact instructional resource requirements. The funds earmarked for lectureship costs will help the Colleges to continue employing their current staff of instructors and hire new qualified instructors to teach the needed additional classes.

Supplies and Equipment

Due to the almost unprecedented numbers of apprentices on the campuses in recent semesters, shop equipment has been over taxed and materials and supplies depleted. The Colleges will use their supplies and equipment budgets to replace old equipment, purchase new equipment and replenish shop supplies and materials. This funding will enable the

Colleges to replace equipment, which are outdated and/or unsafe and purchase different types of equipment that programs can utilize to expand the scope of their training. In addition to the construction-related equipment and supplies, laptop computers are being purchased because an increasing number of apprenticeship instructors are requesting computers and web access to deliver their curricula. Computers are also being configured as mobile computer labs that can be wheeled from room to room to maximize the utility of the new computer equipment.

In summary, with the additional funding, the University of Hawaii Community College Apprenticeship Offices are now in much better positions to more satisfactorily serve their rapidly expanding training programs. The Assistant Registrar at Honolulu Community College will work to ensure the accuracy and integrity of apprenticeship records and improve data gathering and dissemination capabilities. The funding for lectureship costs will help the Colleges meet the steadily increasing number of requests for courses from the training programs and offset the added costs of instructor wage increases which are scheduled over the next two years. Allocations for supplies and materials have enabled the Colleges to at least partially restock shop consumables which constitute huge and growing expenses as enrollments rise. Perhaps the most significant beneficial outcome of this funding is that the Colleges are now able to purchase much needed equipment. Departments have bought or are in the process of purchasing equipment to replace old, outdated and/or unsafe models and types of equipment that were earlier not available for training. Therefore, in several significant ways, the Colleges will be able to more completely meet the training needs of the construction industry.