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# A BILL FOR AN ACT

RELATING TO INNOVATION IN EDUCATION.

**BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:**

1           SECTION 1. The legislature finds that the State of Hawaii  
2 has been developing a number of successful innovative education  
3 models and programs. The legislature further finds that  
4 experiential learning, using innovative methodologies that  
5 engage students in project-based, problem-solving learning, is  
6 an important and expanding strategy for preparing the next  
7 generation of Hawaii's youth for the global economy. Many of  
8 Hawaii's public schools have begun to experiment with applied  
9 and experiential learning programs, but these efforts often  
10 compete in funding and time for programs focusing on improving  
11 test scores.

12           Applied learning high school academies can and should be  
13 available to interested educators, schools and students in areas  
14 such as agriculture, landscape education, marine science,  
15 astronomy, high technology, public health, visitor industries,  
16 human resource services, culture and language, environmental  
17 sciences, visual arts, performing arts, project EAST  
18 (environmental and spatial technology) program subjects,



1 science, technology, engineering, and mathematics (STEM) program  
2 subjects, or other thematic areas of interest to agencies, the  
3 University of Hawaii campuses, and Hawaii businesses. Applied  
4 learning has been most recently promoted in relationship to  
5 science and technology, such as with the project EAST program.

6 One challenge for our education system is that in an effort  
7 to comply with the No Child Left Behind Act of 2001, applied  
8 learning strategies and the necessary focus and flexibility to  
9 extensively develop applied learning programs for more students  
10 need special support, coordination, and attention.

11 The legislature further finds that over the last decade new  
12 approaches to generating higher participation and achievement by  
13 high school students in technical areas have emerged in Hawaii  
14 and throughout the United States in the form of technical  
15 academies run at selected high schools and effective contextual  
16 learning, learning in the context of practical applications,  
17 programs such as fostering interest and respect for science and  
18 technology (FIRST) robotics and project EAST. The applied  
19 learning academy model mixes high-quality instruction with  
20 practical, project-based contextual learning experiences that  
21 generate enthusiasm among students and show them the practical  
22 application of academic skills. These existing efforts deserve



1 continued support and organizational environments that will  
2 nurture their growth.

3 The purpose of this Act is to:

- 4 (1) Recognize, enhance, and expand applied learning  
5 opportunities for a wide range of student interests;
- 6 (2) Develop a closer relationship between the expertise  
7 and resources of the University of Hawaii and the  
8 public school system for grades kindergarten through  
9 twelve;
- 10 (3) Increase the quality of STEM teaching in Hawaii's  
11 schools through providing enhanced professional  
12 development opportunities for practicing teachers and  
13 attracting highly qualified people with STEM degrees  
14 to the teaching profession; and
- 15 (4) Increase the number of Hawaii high school graduates  
16 seeking degrees or certificates in STEM disciplines by  
17 providing scholarships to accredited institutions of  
18 higher education in Hawaii.

19 SECTION 2. Chapter 302A, Hawaii Revised Statutes, is  
20 amended by adding a new part to be appropriately designated and  
21 to read as follows:

22 **"PART . APPLIED LEARNING HIGH SCHOOL ACADEMY PROGRAM**



1           **§302A- Definitions.** Whenever used in this part, unless  
2 the context otherwise requires:

3           "Applied learning high school academy" means a department  
4 of education high school or a school within a school, with an  
5 approved five-year plan to deliver an applied learning  
6 curriculum, including support for project EAST (environmental  
7 and spatial technology) programs, Hawaii excellence through  
8 science and technology programs, and STEM (science, technology,  
9 engineering, and mathematics) programs, linked to the mission of  
10 a state agency or University of Hawaii campus, college, program,  
11 or department, which includes a significant contribution of  
12 land, facilities, personnel, or other resources by that agency  
13 or university unit.

14           "Department" means the department of education.

15           **§302A- Applied learning high school academies.** (a) The  
16 department shall establish and administer an applied learning  
17 high school academy program.

18           (b) The applied learning high school academy program shall  
19 be administered by a director who shall:

20           (1) Collaborate with the director of business, economic  
21 development, and tourism to assess the workforce needs  
22 of the State and devise methods of meeting those needs



- 1           within the applied learning high school academy  
2           program;
- 3           (2) Assist schools, complex areas, and districts in  
4           establishing applied learning high school academy  
5           programs;
- 6           (3) Review school applications for approval of applied  
7           learning high school academy programs;
- 8           (4) Evaluate existing programs;
- 9           (5) Promote the conversion of existing academy programs  
10          and projects into applied learning high school  
11          academies such as project EAST (environmental and  
12          spatial technology), the Hawaii excellence through  
13          science and technology, and STEM (science, technology,  
14          engineering, and mathematics) programs;
- 15          (6) In collaboration with the University of Hawaii,  
16          initiate research and studies for the improvement of  
17          curriculum materials for specialty areas of applied  
18          learning high school academies;
- 19          (7) Ensure that the standards and criteria developed under  
20          this section satisfy the mandates of federally  
21          assisted vocational education;



- 1 (8) Develop in-service programs for teachers and  
2 administrators;
- 3 (9) Serve as a liaison with the representatives of  
4 business, industry, appropriate public agencies, and  
5 institutions of higher education to facilitate the  
6 dissemination of information;
- 7 (10) Promote links with private sector employers in Hawaii;
- 8 (11) Establish an advisory task force representing the  
9 diverse areas of industry in the State, which shall  
10 make annual recommendations on the development of  
11 curriculum, staffing, and strategies to establish a  
12 source of trained and qualified individuals and  
13 strategies for developing the applied learning high  
14 school academies program, including youth leadership  
15 throughout the public schools.
- 16 (c) The department may adopt rules pursuant to chapter 91  
17 for the purposes of this part.

18 **§302A- Applied learning high school academies;**  
19 **application and approval.** (a) Any school may submit a letter  
20 of intent to the department to convert a department high school  
21 or program within a high school to an applied learning high  
22 school academy, and shall develop a detailed five-year plan that



1 shall include significant support of the high school by the  
2 co-sponsoring state agency or University of Hawaii campus.

3 (b) Applied learning high school academies may be  
4 developed with a focus on agriculture, landscape education,  
5 marine science, astronomy, high technology, public health,  
6 visitor industries, human resources services, culture and  
7 language, environmental sciences, visual arts, performing arts,  
8 project EAST (environmental and spatial technology) program  
9 subjects, STEM (science, technology, engineering, and  
10 mathematics) program subjects, or other thematic areas of  
11 interest to agencies, the University of Hawaii campuses, and  
12 Hawaii businesses.

13 (c) The plan shall be approved by the director, the high  
14 school's school community council, and the complex area  
15 superintendent; provided that the evaluation of the application  
16 plans shall incorporate the following criteria:

- 17 (1) The degree to which the plan strives to provide  
18 students with experiences outside the school walls;
- 19 (2) Opportunities for eleventh grade students to complete  
20 a semester-long academic internship in a local  
21 business or agency;



1 (3) Opportunities for twelfth grade students to develop  
2 substantial projects that enable the students to learn  
3 while working on problems of interest and concern in  
4 the community; and

5 (4) Opportunities for ninth and tenth grade students to  
6 "shadow" an adult through a workday, perform community  
7 service in a group project, or engage in lunches with  
8 outside adults on issues of interest.

9 (d) An applied learning high school academy's success  
10 shall be evaluated by the board following each five-year period,  
11 and may be renewed thereafter."

12 SECTION 3. Chapter 304A, Hawaii Revised Statutes, is  
13 amended by adding five new sections to be appropriately  
14 designated and to read as follows:

15 **§304A-A Hawaii excellence through science and technology**  
16 **academy program; established.** (a) There is established within  
17 the University of Hawaii community college system, the statewide  
18 Hawaii excellence through science and technology academy  
19 program. The purpose of the Hawaii excellence through science  
20 and technology academy program shall be to establish applied  
21 learning science, technology, engineering and math academies and  
22 to add resources and support to the department of education to



1 increase the readiness and motivation of Hawaii high school  
2 graduates to pursue post-secondary training and career options  
3 in science, technology, engineering, and math disciplines by  
4 linking the Hawaii excellence through science and technology  
5 academy program to applied learning academies.

6 (b) The Hawaii excellence through science and technology  
7 academy program shall be headed by a director appointed by the  
8 president of the University of Hawaii. The director shall  
9 create an advisory committee to provide guidance to the  
10 director. The Hawaii excellence through science and technology  
11 academy program advisory committee shall include but not be  
12 limited to representatives of the college of education of the  
13 University of Hawaii, the department of education, the Hawaii  
14 Educational Policy Center, the charter schools administrative  
15 office, and businesses that would benefit from graduates of  
16 Hawaii excellence through science and technology academies.

17 The Hawaii excellence through science and technology  
18 academy program advisory committee shall develop performance  
19 measures to ensure that the programs conducted are contributing  
20 substantially and directly to an increase in high school  
21 graduates ultimately entering post-secondary science,



1 technology, engineering, and math programs and pursuing science,  
2 technology, engineering, and math related occupations.

3 (c) The Hawaii excellence through science and technology  
4 academy program shall:

5 (1) Strive to enroll at least twenty-five per cent of the  
6 high school student body in academy programs within  
7 two years of its inception;

8 (2) Partner with the department of education and public  
9 charter schools to establish applied learning high  
10 school Hawaii excellence through science and  
11 technology academies established under part of  
12 chapter 302A- and appropriate public, nonprofit, and  
13 private agencies, to establish individual Hawaii  
14 excellence through science and technology academies  
15 throughout the State; and

16 (3) Have a lead instructor employed by the community  
17 college system with additional qualified instructors  
18 who may be hired by the community colleges.

19 (d) Hawaii excellence through science and technology  
20 academies shall develop a memorandum of agreement to work with  
21 the host high school to implement the required applied learning



1 academic programs for project-based, contextual learning  
2 programs designed to use and expand students' academic skills.

3 **S304A-B Fostering inspiration and relevance through**  
4 **science and technology pre-academy program; established.** (a)

5 There is established within the University of Hawaii, the  
6 statewide fostering inspiration and relevance through science  
7 and technology pre-academy program, which shall be administered  
8 by the college of engineering. The mission of the fostering  
9 inspiration and relevance through science and technology  
10 pre-academy program shall be as follows:

11 (1) With respect to middle schools, to provide additional  
12 resources and expertise for the department of  
13 education to stimulate the interest and achievement of  
14 students in science, technology, engineering, and math  
15 skills and help prepare those students for entry into  
16 the Hawaii excellence through science and technology  
17 academy program, beginning in sixth grade; and

18 (2) With respect to students enrolled in the Hawaii  
19 excellence through science and technology academies,  
20 to support and complement the Hawaii excellence  
21 through science and technology academy's academic  
22 programs with contextual learning projects, taking



1 advantage of non-school hours, non-school days, and  
2 school vacation days to complement existing school day  
3 programs.

4 To achieve its mission, the fostering inspiration and relevance  
5 through science and technology pre-academy program shall house  
6 and provide direction for the statewide robotics and space  
7 contextual learning program under section 304A-C and the  
8 research experiences for teachers program under section 304A-D.

9 (b) The goals of the pre-academy shall be to:

10 (1) Serve students between sixth and eighth grades, with  
11 contextual learning experiences in science,  
12 technology, engineering, and math related skills in a  
13 manner that complements the academic program at public  
14 high schools; and

15 (2) Motivate and engage students in science, technology,  
16 engineering, and math programs.

17 (c) The pre-academy program shall encourage partnerships  
18 with the Hawaii excellence through science and technology  
19 academies, other relevant programs within the University of  
20 Hawaii system, the department of education, interested schools  
21 in areas served by Hawaii excellence through science and  
22 technology academies, project EAST (environmental and spatial



1 technology) program subjects, and appropriate public and private  
2 agencies, to establish a program of contextual learning for  
3 middle school students in science, technology, engineering, and  
4 math disciplines. School participation in the fostering  
5 inspiration and relevance through science and technology pre-  
6 academy programs shall be voluntary.

7 (d) The fostering inspiration and relevance through  
8 science and technology pre-academy program shall support  
9 development of additional contextual learning projects and  
10 summer science, technology, engineering, and math programs for  
11 middle school teachers. For additional contextual learning  
12 projects, priority shall be determined in collaboration with  
13 participating teachers. Areas may include global positioning  
14 system technology, ocean science, astronomy, earth science and  
15 wireless communications technology, conservation biology, and  
16 other science, technology, engineering, and math skills  
17 stimulating subjects as appropriate.

18 (e) The fostering inspiration and relevance through  
19 science and technology pre-academy shall develop program  
20 evaluation measures to ensure that all programs conducted under  
21 the pre-academy are contributing to the advancement of science,



1 technology, engineering, and math academics in the middle  
2 schools through research.

3 **§304A-C Robotics and space contextual learning program;**  
4 **established.** (a) There is established within the University of  
5 Hawaii the robotics and space contextual learning program, which  
6 shall be administered by the college of engineering. The  
7 mission of the robotics and space contextual learning program  
8 shall be to develop science, technology, engineering, and math  
9 skills among students in fostering inspiration and relevance  
10 through science and technology pre-academy and Hawaii excellence  
11 through science and technology academy programs through  
12 robotics- and space-technology-based, contextual projects and  
13 competitions. The robotics and space contextual learning  
14 program shall work with existing programs to expand and deepen  
15 activities, including but not limited to, National Aeronautics  
16 and Space Administration explorer schools; fostering inspiration  
17 and relevance through science and technology robotics, lego  
18 league, and vex challenges or competitions; botball educational  
19 robotics programs; and underwater robotics challenges.

20 (b) The robotics and space contextual learning program  
21 shall coordinate and cooperate with the fostering inspiration  
22 and relevance through science and technology pre-academy and



1 Hawaii excellence through science and technology academy  
2 programs in establishing an integrated system of science,  
3 technology, engineering, and math related, contextual learning  
4 programs under the administration of the pre-academy. The  
5 robotics and space contextual learning program shall enlist,  
6 encourage, train, and support volunteer teachers and other  
7 mentors to conduct robotics and space-related programs at the  
8 school level.

9 **§304A-D Research experiences for teachers program;**  
10 **established.** (a) There is established the research experiences  
11 for teachers program within the University of Hawaii, which  
12 shall be administered by the University of Hawaii college of  
13 engineering. The purpose of the research experiences for  
14 teachers program shall be to support the development of middle  
15 school teacher skills and knowledge, and the development of  
16 middle school curriculum materials in science, technology,  
17 engineering, and math subject areas, with a focus on wireless  
18 communications.

19 (b) The research experiences for teachers program shall:  
20 (1) Educate teachers in the advances in technology in  
21 wireless communications and engineering;



- 1        (2) Enhance teacher research skills through the use of  
2        software and innovative uses of equipment;
- 3        (3) Provide teacher participants with hands on research  
4        experiences;
- 5        (4) Support teachers in developing classroom lessons and  
6        program activities that meet their course objectives  
7        and student performance standards; and
- 8        (5) Provide opportunities to share and collaborate with  
9        other teacher participants to ensure successful  
10       implementation of curricula and programs.
- 11       (c) Specific activities of the research experiences for  
12 teachers programs shall include:
- 13       (1) Providing on-site lectures, demonstrations, and  
14       laboratory tours at the University of Hawaii and  
15       middle schools;
- 16       (2) Reviewing wireless communication concepts, methods,  
17       history, and applications;
- 18       (3) Reviewing engineering and relevant science concepts,  
19       research methodology, and real-world applications;
- 20       (4) Reviewing key components of inquire-based teaching  
21       materials;
- 22       (5) Providing teachers with technical content support;



1       (6) Assisting teachers in adapting state-of-the-art  
2       engineering research into a meaningful classroom  
3       experience for students;

4       (7) Providing seminars to transfer relevant information  
5       and experiences among teacher participants and  
6       sponsors;

7       (8) Providing summer engineering workshop for teachers;  
8       and

9       (9) Maintaining a website for content and program  
10       dissemination.

11       **§304A-E Professional development program; established.**

12       (a) There is established within the University of Hawaii a  
13       professional development program to provide practicing  
14       elementary, middle, and high school teachers of science and  
15       mathematics with opportunities to increase their knowledge and  
16       understanding of recent developments in science, technology,  
17       engineering, and mathematics. The professional development  
18       program shall be administered by the University of Hawaii  
19       college of education and shall be open to both certificated and  
20       non-certificated teachers. Design of the professional  
21       development program shall include evaluation of best practices  
22       in other school jurisdictions.



1        (b) In recognition that the year-round public school  
2 calendar has shortened the summer period, that not all schools  
3 are on the same academic calendar, and that programs throughout  
4 the year, offered in a variety of formats, would facilitate  
5 immediate implementation in the classroom, the professional  
6 development program shall have the following attributes:

7        (1) Flexibility – the program shall provide a variety of  
8 options designed to meet the specific needs of  
9 Hawaii's teachers, which may include summer  
10 institutes, a combination of summer, after school, or  
11 weekend institutes, distance learning through video  
12 conferencing or other mechanisms, neighbor island  
13 locations, or other options; and

14        (2) Accountability – the program shall provide a method to  
15 track the student outcomes derived from participation  
16 in the program.

17        (c) The goal of the professional development program for  
18 practicing teachers shall be to provide training for two  
19 thousand six hundred teachers during the 2007-2009 biennium."

20        SECTION 4. There is established within the department of  
21 business, economic development, and tourism, the  
22 business/education internship and mentorship program. The



1 purpose of this program is to establish, with the cooperation of  
2 educational institutions, intern, mentorship, and other  
3 experiential learning arrangements within the business  
4 community, nonprofit sector, and government, for Hawaii high  
5 school students and Hawaii high school graduates attending  
6 college in Hawaii or elsewhere. The goals of this program shall  
7 be to provide Hawaii students with experience in the world of  
8 work to improve their career choices, and to provide  
9 opportunities for Hawaii employers to establish relationships  
10 with students who represent an essential source of skills for  
11 Hawaii's future economic growth and prosperity. The department  
12 of business, economic development, and tourism shall coordinate  
13 with the department of education and may contract with  
14 appropriate government, nonprofit, or for-profit entities to  
15 accomplish the purpose and goals of this program.

16 SECTION 5. There is provided funding to support a  
17 successful recruitment program currently funded under the United  
18 States Department of Education Transition to Teaching Program  
19 that has resulted in ninety new qualified mathematics and  
20 science teachers since it began four-and-a-half years ago. The  
21 Transition to Teaching program provides stipends as recruitment  
22 incentives for people who hold degrees in science, technology,



1 engineering, and math subjects to get their teaching  
2 certificates through the University of Hawaii's post  
3 baccalaureate certificate in secondary education program. The  
4 university's transition to teaching grant will expire in 2008.  
5 There is a chronic shortage of science and mathematics teachers  
6 and the post baccalaureate certificate in secondary education  
7 program is an effective method to address the problem, however  
8 recruitment for potential science, technology, engineering, and  
9 math teachers is difficult and the incentive of stipends has  
10 proven effective. The goal of the program is to produce twenty  
11 new science or mathematics teachers each year.

12       There is appropriated out of the general revenues of the  
13 State of Hawaii the sum of \$                    or so much thereof as may  
14 be necessary for fiscal year 2007-2008 and the same sum or so  
15 much thereof as may be necessary for fiscal year 2008-2009 for  
16 the Transition to Teaching program to provide stipends to  
17 attract science, technology, engineering, and math graduates to  
18 the University of Hawaii post baccalaureate certificate in  
19 secondary education program.

20       The sums appropriated shall be expended by the University  
21 of Hawaii for the purposes of this Act.



1 SECTION 6. There is appropriated out of the general  
2 revenues of the State of Hawaii the sum of \$ or so  
3 much thereof as may be necessary for fiscal year 2007-2008 for  
4 planning and start-up grants for the applied learning high  
5 school academy program established pursuant to section 2 of this  
6 Act.

7 The sum appropriated shall be expended by the department of  
8 education for the purposes of this Act.

9 SECTION 7. There is appropriated out of the general  
10 revenues of the State of Hawaii the sum of \$ or so  
11 much thereof as may be necessary for fiscal year 2007-2008 and  
12 the same sum or so much thereof as may be necessary for fiscal  
13 year 2008-2009 for the operations of applied learning high  
14 school academies established pursuant to section 2 of this Act;  
15 provided that the funds appropriated shall be allocated on a per  
16 pupil basis.

17 The sum appropriated shall be expended by the department of  
18 education for the purposes of this Act.

19 SECTION 8. There is appropriated out of general revenues  
20 of the State of Hawaii the sum of \$ or so much thereof  
21 as may be necessary for fiscal year 2007-2008 and the amount of  
22 \$ or so much thereof as may be necessary for fiscal



1 year 2008-2009 for establishing the Hawaii excellence through  
2 science and technology academy program established pursuant to  
3 section 3 of this Act.

4 The sums appropriated shall be expended by the University  
5 of Hawaii for the purposes of this Act.

6 SECTION 9. There is appropriated out of general revenues  
7 of the State of Hawaii the sum of \$ or so much thereof  
8 as may be necessary for fiscal year 2007-2008 and the amount of  
9 \$ or so much thereof as may be necessary for fiscal  
10 year 2008-2009 for establishing the fostering inspiration and  
11 relevance through science and technology pre-academy program  
12 established pursuant to section 3 of this Act; provided that the  
13 sums appropriated shall be allocated as follows:

14 (1) \$ for the robotics and space contextual  
15 learning program; and

16 (2) \$ for the research experiences for teachers  
17 program.

18 The sums appropriated shall be expended by the University  
19 of Hawaii for the purposes of this Act.

20 SECTION 10. There is appropriated out of the general  
21 revenues of the State of Hawaii the sum of \$ or so  
22 much thereof as may be necessary for fiscal year 2007-2008 and



1 the same sum, or so much thereof as may be necessary for fiscal  
2 year 2008-2009 for developing certificate programs for  
3 professional development in science, technology, engineering,  
4 and math disciplines for practicing teachers.

5 The sums appropriated shall be expended by the University  
6 of Hawaii for the purposes of this Act.

7 SECTION 11. There is appropriated out of the general  
8 revenues of the State of Hawaii the sum of \$ or so  
9 much thereof as may be necessary for fiscal year 2007-2008 and  
10 the same sum or so much thereof as may be necessary for fiscal  
11 year 2008-2009 for the business/education internship and  
12 mentorship program.

13 The sums appropriated shall be expended by the department  
14 of business, economic development, and tourism for the purposes  
15 of this Act.

16 SECTION 12. In codifying the new sections added by section  
17 3 of this Act, the revisor of statutes shall substitute  
18 appropriate section numbers for the letters used in designating  
19 the new sections in this Act.

20 SECTION 13. New statutory material is underscored.

21 SECTION 14. This Act shall take effect on July 1, 2007.



**Report Title:**

Education; Innovation Initiatives; Appropriation

**Description:**

Establishes the applied learning high school academy program that will link the curriculum of a school to the mission of a particular agency or University of Hawaii campus; establishes the Hawaii excellence through science and technology academy program to increase the readiness and motivation of public high school graduates to pursue post secondary training and career options in science, technology, engineering, and mathematics (STEM) disciplines; establishes the fostering inspiration and relevance through science and technology pre-academy program; establishes a professional development program to provide practicing public elementary, middle, and high school science and mathematics teachers with opportunities to increase their knowledge and understanding of recent developments in science, technology, and mathematics; provides stipends as an initiative for individuals who hold degrees in STEM subjects to obtain teaching certificates through the University of Hawaii's post baccalaureate certificate in secondary education program; creates the business and education internship and mentorship program; makes appropriations. (SD1)

