Applied Business and Information Technology (ABIT)
Bachelor of Applied Science (BAS) Program

2020
ANNUAL REVIEW OF PROGRAM DATA

UNIVERSITY of HAWAI'I®
MAUI COLLEGE

1. Program or Unit Description

Program Mission

The Applied Business and Information Technology (ABIT) program prepares graduates to be successful entrepreneurs, technology professionals and knowledge workers in today's global economy and environment. The ABIT program is within the mission of the UH Maui College, offering a four-year degree that emphasizes high quality instruction and project-based learning.

Target Student Population

The Applied Business and Information Technology (ABIT) program offers both lower and upper-division courses to all students. The ABIT program serves a diverse student population, many of whom are first generation college students. The program also adjusts to traditional and non-traditional students, many of whom hold part-time jobs while completing their educational degree. The ABIT program is structured so that students can complete their entire degree over a four-year period. However, many students take longer to complete this degree based on personal and professional constraints and commitments.

The ABIT program is now established a distance learning program which makes it available to distance learners outside Maui County. As such, the ABIT degree is now available to all students in Hawaii and potentially, the US Mainland.

2. Analysis of the Program/Unit

Overall, for the 2020 Review Year, the ABIT BAS program has an overall health status of **Healthy.**

Demand Indicators

#	Demand Indicators	2017 - 18	2018 - 19	2019 - 20	Demand Health
1.	New & Replacement Positions (State)	432	411	414	
2.*	New & Replacement Positions (County Prorated)	38	37	38	
3.	Number of Majors	98	75	72	
3a.	Number of Majors Native Hawaiian	34	25	21	
3b.	Fall Full-Time	63%	54%	53%	
3c.	Fall Part-Time	37%	46%	47%	
3d.	Fall Part-Time who are Full-Time in System	3%	5%	11%	
3e.	Spring Full-Time	44%	45%	47%	**Healthy**
3f.	Spring Part-Time	56%	55%	53%	
3g.	Spring Part-Time who are Full-Time in System	9%	7%	10%	
4.	SSH Program Majors in Program Classes	474	312	447	
5.	SSH Non-Majors in Program Classes	381	381	369	
6.	SSH in All Program Classes	855	693	816	
7.	FTE Enrollment in Program Classes	29	23	27	
8.	Total Number of Classes Taught	17	16	17	

Over the past three Academic Years (AY17-18, AY18-19 and 19-20) the demand indicators have decreased slightly for New and Replacement Positions (State) from 432 to 414. The New and Replacement Positions (County) has remained stable at 38. These numbers are for the Program CIP# 52.0799 – Entrepreneurial and Small Business Operations from the National Center for Education Statistics. This indicates steady demand at the state and county levels for ABIT graduates.

Majors: The number of ABIT majors has dropped from a high of 98 in AY 2017-18 to 72 in 2019-20. The sustainable number of majors for the ABIT program is within the range of 70-90 students. The % of FT and Part-time majors is 53%-47% in the Fall Semester of 2019-20 and 47%-53% in the Spring Semester 2019-20. This indicates that half of ABIT students are FT students which is higher than other programs at UHMC.

Nearly all ABIT students hold part-time or full-time jobs, in addition to pursuing their studies in the ABIT program. Overall, the demand indicators for the ABIT program indicate that there are more major SSH (447 SSH) than non-major SSH (369) in 2019-2020. This indicates that ABIT program classes are attractive to non-Majors and this is a healthy sign for demand for the ABIT program. The FTE enrollment in Program Classes is also a healthy number of 27, which indicates a strong interest in enrollment in ABIT classes.

Efficiency Indicators

#	Efficiency Indicators	2017 - 18	2018 - 19	2019 - 20	Efficiency Health
9.	Average Class Size	17	14	16	
10.*	Fill Rate	60.4%	57.6%	64.5%	
11.	FTE BOR Appointed Faculty	1	2	2	
12.*	Majors to FTE BOR Appointed Faculty	98	38	36	
13.	Majors to Analytic FTE Faculty	98	38	36	
13a.	Analytic FTE Faculty	2	2	2	
14.	Overall Program Expenditures	$90,327	$150,433	$145,478	**Cautionary**
14a.	General Funded Budget Allocation	$74,663	$140,901	$138,152	
14b.	Special/Federal Budget Allocation	0	0	0	
14c.	Tuition and Fees	$15,664	$9,532	$7,326	
15.	Cost per SSH				
16.	Number of Low-Enrolled (<10) Classes	3	6	3	

The average class size for ABIT is 16 in 2019-20 which is a reasonable number, given that there are 72 majors in the program. Fill rate for the classes has increased to a high number of 64.5% which is also reasonable for the program. With the hire of an additional ABIT FTE BoR Appointed Faculty in 2018-19, the majors to BoR FTE has gone down to a reasonable 36 students per BoR FTE Faculty in AY 19-20. Low-enrolled classes are down.

The General Funded Budget Allocation, which is largely allocated for the faculty salaries of 2 ABIT FT faculty is $138, 152. In addition, the ABIT program has a special operating budget which totaled $7,326 in AY 19-20. Overall, the ABIT program is a very profitable program given that all upper division credits (SSH) are charged at a higher tuition rate. There is room for improvement with

increasing the average class size through the adoption of more online classes, which will allow more working students to take courses in ABIT.

Effectiveness Indicators

#	Effectiveness Indicators	2017 - 18	2018 - 19	2019 - 20	Effectiveness Health
17.	Successful Completion (Equivalent C or Higher)	79%	86%	80%	
18.	Withdrawals (Grade = W)	25	11	22	
19.*	Persistence Fall to Spring	78%	72%	76%	
19a.	Persistence Fall to Fall	51%	47%	52%	
20.*	Unduplicated Degrees/Certificates Awarded	14	8	13	
20a.	Degrees Awarded	14	8	13	
20b.	Certificates of Achievement Awarded	0	0	0	Healthy
20c.	Advanced Professional Certificates Awarded	0	0	0	
20d.	Other Certificates Awarded	0	0	0	
21.	External Licensing Exams Passed [1]				
22.	Transfers to UH 4-yr	42	24	28	
22a.	Transfers with credential from program	20	11	16	
22b.	Transfers without credential from program	22	13	12	

Students in the ABIT program have a high rate of course completion, with a grade C or higher. The Persistence rate within an Academic Year or Fall to Spring is high at 76%. This implies that students continue their courses for the entire academic year before opting for other options.

Distance Indicators

#	Distance Indicators	2017 - 18	2018 - 19	2019 - 20
23.	Number of Distance Education Classes Taught	10	9	6
24.	Enrollments Distance Education Classes	197	164	106
25.	Fill Rate	66%	67%	61%
26.	Successful Completion (Equivalent C or Higher)	75%	85%	76%
27.	Withdrawals (Grade = W)	19	9	10
28.	Persistence (Fall to Spring Not Limited to Distance Education)	88%	75%	75%

The ABIT program was approved by the WSCUC accreditation committee as a distance program in 2018 and can reach the entire state of HI. ABIT employs hybrid courses, where there is one contact hour of live synchronous classes to distance learners and one contact hour for asynchronous online learning. This hybrid mode of instruction is delivered via distance learning tools such as Zoom, directly to a student's laptop or to a learning center within the UH system. All upper division ABIT courses are now offered to distance students, or to students who are not able to commute in person to the Kahului campus. This has allowed the ABIT program to be delivered to students outside Maui County, including students from Oahu. Currently, the ABIT BAS program has the following Memorandum of Agreement (MoA) with the following community colleges in the UH system:

- Kapiolani Community College – AS in Information Technology
- Leeward Community College – AS in Information and Computer Science
- Honolulu Community College – AS in Computer, Security and Networking Technology
- Hawaii Community College – AAS in Information Technology

Given that the ABIT program is now offered statewide, there are students from Oahu who are currently enrolled in the ABIT program. Many of these students are graduates of the AS in ITS program from Kapiolani Community College. These students take courses from Oahu and enroll in ABIT classes via distance education. However, the ABIT program provides counseling and support to these students outside Maui County.

The ABIT counselor keeps in regular contact with students outside Maui County and the ABIT Program Coordinator makes regular trips to Kapiolani CC and Molokai Education Center to confer and coordinate with the students. With the onset of the Covid-19 pandemic in March 2020, all courses in the ABIT program has transitioned to an online modality. This has allowed distance students to participate on equal terms with students from Kahului. Currently, ABIT faculty adopt a mix of synchronous and asynchronous online modality to teach students from all over the state.

Performance Indicators

#	Performance Indicators	2017 - 18	2018 - 19	2019 - 20
35.	Number of Degrees and Certificates	14	8	13
36.	Number of Degrees and Certificates Native Hawaiian	7	2	3
37.	Number of Degrees and Certificates STEM	Not STEM	Not STEM	Not STEM
38.	Number of Pell Recipients[1]	6	3	7
39.	Number of Transfers to UH 4-yr	42	24	28

The graduation rate for the ABIT program has been more than an average of 10 students for the past 3 years. For the AY 20-21, ABIT projects to graduate an estimate of 12 students. Many ABIT graduates seek employment in small business in the hospitality or technology industry. Recent graduates from the ABIT program have received employment in the local high technology industry on Maui, specifically at the Pacific Disaster Center, based out of Kihei, Maui. Additional details about graduate highlights can be found at the UHMC ABIT website at http://maui.hawaii.edu/abit.

3. Program Student Learning Outcomes or Unit/Service Outcomes

a) *List of the Program Student Learning Outcomes*

In addition to demonstrating college-wide learning outcomes in creativity, writing, critical thinking, oral communication, quantitative reasoning, and information literacy, graduates of

the Bachelor of Applied Science (BAS) degree in Applied Business and Information Technology (ABIT) program, will be able to do the following:

1. Develop effective business plans and strategies using essential business functions such as marketing, management, accounting, and statistics.
2. Design prototypes using current business technology for e-commerce, web programming, databases, systems analysis, and project management.
3. Create minimum viable products or services for a feasible business venture through entrepreneurship and technology skills.
4. Demonstrate business ethics, value, and integrity through teamwork and leadership.

b) *Program Learning Outcomes that have been assessed in the year of this Annual Review*

The above PLOs are assessed by ABIT upper division courses that develop the relevant knowledge, skills and competencies among the students.

Mandatory ABIT **business courses** that develop some/all of the above PLOs include:
- Accounting (ACC 300) – Intermediate Financial Accounting I
- Management (MGT 310) – Principles of Management
- Marketing (MKT 300) – Principles of Marketing
- Entrepreneurship (BUS 320) – Entrepreneurship
- Business Analytics (BUS 310) – Statistical Analysis for Business Decisions

Mandatory ABIT **technology courses** that develop some/all of the above PLOs include:
- E-Commerce (ICS 320) – Introduction to Info Systems and E-Commerce
- Databases (ICS 360) – Database Design and Development
- Web Development (ICS 385) – Web Development and Administration
- Project Management (ICS 418) – Systems Analysis and Design

Mandatory **Capstone courses** that demonstrate the above PLOs at a graduation-ready level.
- Capstone I (BUS 495) – Lean Launchpad, Business Canvas and Minimum Viable Product
- Capstone II (BUS 496) – Extend MVP with Customer Feedback, Prepare for Launch

c) *Method used for Assessment*

The major assessment activity that measures all the ABIT PLOs is the Capstone Project in BUS 495 and 496. This project is assessed by the ABIT Advisory Board, community members and the ABIT faculty. The assessment activity for the ABIT Capstone project is as follows:

1. In Week 5 or so of Capstone I, students make pitch of the project to the Advisory Board
2. In Week 15 of Capstone I, students demonstrate their project to the community

3. Assessment Rubrics, that cover all PLOs, are used in Week 5 and Week 15
4. Students are also assessed on soft skills such as communication and presentation skills
5. Students receive ongoing feedback from instructor and mentoring from Advisory Board
6. During Capstone II, students construct the basics of a real business startup
7. At the end of Capstone II, students are assessed on all ABIT PLOs at the exit level

d) Assessment Results

Overall, students scored well on most of the four ABIT PLOs listed below. On a scale of 1 (Well Below Average) - 3 (Average) - 5 (Well Above Average), students scored a 3.5 on PLO2 which involves creating prototypes using technology skills. Students a 4 and above on the other PLOs 1, 3 and 4 that involves creating business plans, MVPs and demonstrating ethics.

1. Develop effective business plans and strategies using essential business functions such as marketing, management, accounting, and statistics - Above Average (4.5)
2. Design prototypes using current business technology for e-commerce, web programming, databases, systems analysis, and project management - Average (3.5)
3. Create minimum viable products or services for a feasible business venture through entrepreneurship and technology skills - Above Average (4)
4. Demonstrate business ethics, value, and integrity through teamwork and leadership - Well Above Average (4.5)

e) Changes that have been made as a result of the assessment results.

Due to the relatively lower scores on the PLO2, which involves technology prototypes, a greater effort has been placed on this activity during Capstone I or BUS 495. Students are trained in the underlying technology to create these prototypes and greater emphasis is placed on technology learning during pre-Capstone ICS courses such as ICS 365, ICS 385 and ICS 418. It should be noted that many ABIT Capstone students are transfer students with backgrounds at the Associate or lower-division level that involves non-technical programs.

With the onset of the Covid-19 pandemic in March 2020, there is a greater emphasis on online education. Hence, the ICS courses in ABIT have been programmed for online labs and exercises. These labs have reinforced the students to learn new technologies that revolve around cloud technologies and emerging technologies such as data science. The ABIT program continues to evolve with the changing times and economy. As future technologies emerge, the ABIT program changes to adopt new course topics and curriculum. Based on the economic impact of the Covid-19 pandemic, the future economy of Hawaii may be more diversified and rely on technology jobs. The ABIT program is well positioned to train current students in jobs that will be prevalent in Hawaii in the near future.

4. Action Plan

The action plan for ABIT for AY20-19, is an extension of the previous year's plan:

Resources - ABIT intends to minimize its cost of operations by only hiring lecturers when they can be paid for by extramural funds. This reduces the burden on UHMC for lecturer costs. Also, ABIT FT BoR Faculty will teach all the essential courses for ABIT, as outlined in the program map. Shared faculty from other programs, such as ACC, BUS, PHIL and ENG, will continue to teach the GenEd courses. Overall, ABIT intends to remain a profitable program in AY20-21.

Curricular - ABIT will review all courses in its curriculum lineup during the spring semester 2020. This will enable the ABIT faculty to ensure that all courses have been recorded correctly and completely in Kuali Curriculum. There are no plans on changing the ABIT program map in AY20-21 or introducing any new required courses in the ABIT curriculum and program map.

Agreements with UH CCs - ABIT recently completed a MoA with Hawaii CC where their AS in ITS graduates would be eligible to pursue upper division courses from Oahu and complete the BAS in ABIT degree. In addition to Hawaii CC, the ABIT program also completed MoAs with Kapiolani CC, Honolulu CC and Leeward CC. These MoAs allows the ABIT BAS program to be an option for graduates from all the large community colleges within the UHCC system.

Applied Research - ABIT faculty and program coordinator, Dr. Debasis Bhattacharya, is the recipient of several NSF grants that total more than $2M. Currently, Dr. Bhattacharya is the Principal Investigator (PI) of two statewide NSF grants. The NSF CSP4HI project is training 60 HI DoE teachers over the course of three years to teach AP Computer Science Principles (CSP). The NSF CyberSecure project conducts cybersecurity research and training.

Center for Academic Excellence (CAE) in Cyber Defense Education (CDE) - In April 2019, the ABIT BAS program was designated a CAE-CDE by the National Security Agency (NSA) and Department of Homeland Security (DHS). This designation was granted primarily due to the focus on cybersecurity education within several ABIT courses. Students who graduate from the ABIT program are entitled to receive a special CAE CDE certificate. This designation will help ABIT to attract students who are interested in pursuing a cyber career. This designation as a CAE also allows the ABIT program and UHMC to be eligible for funding from a variety of government sources.

Five-Week Online Program: The UHCC system has pioneered a special program for working adults, who can only take one course at a time in a five-week compressed format. Currently, the AA program in Leeward CC is on track to have a graduating cohort in December 2021. ABIT faculty and lecturers are going to train in the spring and summer of 2021 to learn to teach in the five-week online program. The overall plan is for the ABIT program to launch as parallel and separate five-week online pathway for working professional starting the Spring semester 2022.

5. Resource Implications

Detail any resource requests, including reallocation of existing resources (physical, human, financial)

None required. The ABIT program is self-sufficient in personnel, resources and equipment for AY20-21.

The cost of the ABIT program is shown below and is largely based on the salaries of two FT faculty members. There is a small operating budget for the ABIT program that covers marketing, supplies and recruitment costs. The ABIT program is profitable and makes significantly more revenues, primarily based on the SSH from upper division revenues, than the total cost to run the program.

14.	Overall Program Expenditures	$90,327	$150,433	$145,478
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14b.	Special/Federal Budget Allocation	0	0	0
14c.	Tuition and Fees	$15,664	$9,532	$7,326

☒ **I am NOT requesting additional resources for my program/unit.**