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NAVAJO TECHNICAL UNIVERSITY

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NTU Program Review

2016-2017

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Program Review

Each program at NTU is reviewed once every three years to determine if the program is viable or if changes need to be made in the curriculum. As a part of the Higher Learning Commission (HLC) requirements for accreditation, every institution must maintain a practice of regular program review, i.e., HLC Core Component 4A. The Institution demonstrates responsibility for the quality of its educational programs. The following information can be derived from a program review:

- To determine if a program is viable.
- Ensure that a program's mission, goals, and priorities align with NTU's mission and strategic plan.
- Evaluate the quality of a program in comparison to national standards.
- Assist the University and departments to achieve optimal use of available resources.
- Faculty and staffing requirements
- Analysis of physical space appropriateness for teaching
- Adequacy of laboratory equipment
- Adequacy of supplies which are allocated to the programs to facilitate teaching
- Enrollment management, employment data, graduation rates, persistence, and retention
- Revenue and budget information
- Future trends in the industry

Spring 2017 Program Review

NAVAJO TECHNICAL UNIVERSITY Accounting and Bookkeeping, Certificate and AAS Program Review SPRING 2017

1. INTRODUCTION

As part of Navajo Technical University's (NTU) commitment to the cycle of planning and evaluation a rigorous program review process is used. Each program at NTU has been reviewed once in every three (3) years by an external consultant to determine if a program is viable or if any changes need to be made in the curriculum.

The first step in NTU's program review is an environmental scan that enables the administration and faculty to understand the external environment and interconnections of various sectors of the community and industries. The University uses the environmental scans for planning and decision-making processes.

Business training is vitally important on the Navajo Nation and each month the Navajo Nation posts multiple jobs requiring accounting and bookkeeping skills. The NTU program

provides students with skills that give them advanced status in the workplace and provides well-trained manpower for the Navajo Nation.

The national median annual wage for bookkeeping, accounting, and auditing clerks was \$38,390 in May 2016.

The number of jobs nationally is projected to decline slightly between 2014-2024 due to technological advances. This increases the importance of continuing to provide students opportunities to learn with new technology. There is an expectation in the field that students will have some college education.

In New Mexico Accounting jobs are among the occupations with the most annual job openings.

A Business School is in the approval process. When approved the programs will be accredited with ACBSP.

2. NAME OF PROGRAM: Accounting and Bookkeeping
3. NAME OF DEPARTMENT: Business and Education
4. DATE OF LAST REVIEW: Spring 2013
5. DATE OF CURRENT REVIEW: May 2017

6. PROGRAM MISSION:

The mission of the Accounting program is committed to preparing students to be active and engaged citizens in the academic and professional communities by strengthening students' technical and interpersonal skills, enhancing their understanding of professional responsibility, and improving their business skills necessary to implement in today's complex and ever changing business environment.

The Public Administration program will prepare students for diverse roles in public sector including administrative, management and leadership positions in any federal, state and local government agencies and non-profit organizations, to teach students professional ethics, public service values and intellectual discipline necessary to enter government agencies especially in Navajo Nation governmental offices with a strong commitment to help for the continuous improvement and transformation of its governance and social institutions.

7. PROGRAM GOALS:

Graduates should be able to use accounting information to make informed decisions about the operating performance and financial position of a company.

Graduates should be able to demonstrate competency in preparing complex financial statements

Graduates should be able to describe the fundamentals of accounting based on generally accepted accounting principles.

Graduates should be able to demonstrate competency in preparing personal income tax returns, payroll register and employee earnings record, and financial statements for business, company and for governmental and not-for-profit organizations in accordance to Government Accounting Standard Board (GASB), Financial Accounting Standard

Board (FASB), Federal Accounting Standard Advisory Board (FASAB) and Comprehensive Annual Financial Report (CAFR) standards.
Graduates should be able to identify personal financial issues of individuals.
Students should be able to demonstrate an understanding of the monetary and banking issues that are pervasive in all aspects of financial services.
Students should be able to describe personal financial and investment concepts that enable them to provide customers with advice on investments, insurance and estate planning.
Students should be able to show literacy in using different accounting and spreadsheet software.
Understand the underlying principles and discipline of public administration: its theories and concepts.
To integrate politics, administration, management, theory and practice of ancient civilizations to today's diverse world of public administration.
To gain knowledge of legal procedures in public sectors, its managerial ethics, budgeting processes, civil service and the functions and duties of numerous government agencies.
Demonstrate the ability to work with and/or lead a diverse team toward goal accomplishment.
Understand the importance of attracting, developing and retaining a high quality workforce.
Improve decision-making skills, communicate effectively, both orally and in written form.

8. CURRENT ENROLLMENT: 53

9. FULL-TIME EQUIVALENCY:

Accounting AAS: 27.40

Bookkeeping Certificate: 16.67

10. NUMBER OF FACULTY: 2 full time at Crownpoint and 1 at Chinle and 2 faculty are or have been dual credit or adjunct

11. STUDENT TO FACULTY RATIO: 53:2

12. JOB PLACEMENT RATE:

Accounting: 67%

Bookkeeping: 100%

13. RESULTS OF PROGRAM ASSESSMENT: (HLC-4B)

In 2017 the following program goals were measured:

- Graduates should be able to demonstrate competency in preparing personal income tax returns, payroll register and employee earnings record, and financial statements for business, company and for governmental and not-for-profit organizations in accordance to Government Accounting Standard Board (GASB), Financial Accounting Standard Board (FASB), Federal Accounting Standard

Advisory Board (FASAB) and Comprehensive Annual Financial Report (CAFR) standards.

- Graduates should be able to identify personal financial issues of individuals.
- Students should be able to demonstrate an understanding of the monetary and banking issues that are pervasive in all aspects of financial services.
- Students should be able to describe personal financial and investment concepts that enable them to provide customers with advice on investments, insurance and estate planning.
- To gain knowledge of legal procedures in public sectors, its managerial ethics, budgeting processes, civil service and the functions and duties of numerous government agencies.
- Demonstrate the ability to work with and/or lead a diverse team toward goal accomplishment.
- Understand the importance of attracting, developing and retaining a high-quality workforce.
- Improve decision-making skills, communicate effectively, both orally and in written form.

14. CONTINUOUS IMPROVEMENT BASED ON ASSESSMENT RESULTS:

In Assessment surveys 75% of students had 80% mastery of the materials and were positive about their educational experience.

15. REVENUE GENERATED FROM THE PROGRAM: This program provides a valuable community service of tax assistance and preparation.

16. PROGRAM BUDGET: \$87,573

17. COMPLETION RATE:

Accounting: 11%

Bookkeeping: 24%

18. GRADUATION RATE:

Accounting: 0%

Bookkeeping: 43%

19. RETENTION RATE:

Fall 2014: Accounting AAS: 39%

Fall 2014: Bookkeeping Certificate: 49%

Fall 2015: Accounting AAS: 29%

Fall 2015: Bookkeeping Certificate: 38%

Fall 2016: Accounting AAS: 76%

Fall 2016: Bookkeeping Certificate: 33%

20. PERSISTENCE RATE:

Spring 2014: Accounting AAS: 87%

Spring 2014: Bookkeeping Certificate: 54%

Spring 2015: Accounting AAS: 63%
Spring 2015: Bookkeeping Certificate: 53%
Spring 2016: Accounting AAS: 60%
Spring 2016: Bookkeeping Certificate: 33%
Spring 2017: Accounting AAS: 92%
Spring 2017: Bookkeeping Certificate: 54%

21. SPACE UTILIZATION ANALYSIS:

The former snack shop is being used as an additional classroom and it is not suitable.

22. RECOMMENDATIONS:

- Reactivate an Advisory Council
- Develop more employer internships
- Support the Business Club
- Provide a more suitable additional classroom
- Administrative support
- Increase support for faculty training and professional development
- Provide support for off campus learning trips

ADMINISTRATIVE OFFICE SPECIALIST, CERTIFICATE AND AAS PROGRAM REVIEW SPRING 2017

1. INTRODUCTION

As part of Navajo Technical University's (NTU) commitment to the cycle of planning and evaluation a rigorous program review process is used. Each program at NTU has been reviewed once in every three (3) years by an external consultant to determine if a program is viable or if any changes need to be made in the curriculum.

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AOS is the third largest program on the campus. It provides skilled office workers throughout the Nation. Many students don't want to leave the Nation so this program gives them an opportunity to work here. The AOS faculty are accessible to students and work with the students to help them prepare to enter an administrative occupation. The faculty is consistently exploring how to best prepare students for the rapidly changing workplace requirements.

There is a growing demand for virtual assistants in all administrative realms. The current AOS program includes the basic courses in a Virtual Assistant Associates Degree and

they are researching and in discussion with IT faculty to develop the specific virtual assistant courses.

An administrative office specialist -- sometimes called an administrative assistant -- has an important role in making sure an office operates smoothly and efficiently.

Organizational and communication skills are essential, and almost every organization relies on the skills of qualified administrative assistants to support their operations. Many administrative office specialists advance to executive assistants or other advanced positions. The AOS program emphasizes the hard and soft skills necessary to succeed in the workplace.

Employment of office and administrative support occupations is projected to grow 2 percent from 2014 to 2024, slower than the average for all occupations, which will result in about 466,500 new jobs. Technology is expected to substitute or supplant some functions that workers in office and administrative support occupations do. The median annual wage for office and administrative support occupations was \$33,200 in May 2015.

In March of 2017 the Navajo Nation posted 5 jobs for Administrative Office Specialists in different divisions throughout the Nation with salaries in the \$20,000-24,000 range.

In March of 2017 the Bureau of Labor Statistics reported over 30,000 Administrative Office positions in New Mexico. Most months there are postings for approximately 500 positions throughout the state. The majority being in the major urban areas of Santa Fe, Albuquerque, Rio Rancho and Las Cruces.

2. NAME OF PROGRAM: Administrative Office Specialist, Certificate and AAS
3. NAME OF DEPARTMENT: Business and Education
4. DATE OF LAST REVIEW: Fall 2012
5. DATE OF CURRENT REVIEW: May, 2017

6. PROGRAM MISSION: To prepare students to earn a certificate and/or associates degree to achieve a high level of competence in the business community after graduation.

This program supports the broader mission of NTU by providing value to the Dine community through its commitment to high quality, student-oriented, hands-on learning based on the Dine cultural principles.

7. PROGRAM GOALS:
 1. To begin collaboration with other programs so that AOS students who want to specialize in a particular professional area are able to transition smoothly into that area.
 2. To teach the most recent developments in software as they apply to the program.

3. To emphasize heavily the importance of communication skills and their relevance to all areas of business.
4. Offer opportunities in the areas of job placement and internships.
5. Introduce new technology in relation to office work, in word processing, records management, and office accounting.

Graduates from the AOS program must complete and acquire the knowledge, understanding and ability to demonstrate the following outcomes:

1. Become certified in the use of Microsoft Office Suite and Microsoft Project.
2. Have an understanding of how an office operates and how to manage an office.
3. Have competent writing skills, as well as technical presentation skills.
4. Be able to be a member of and contribute to a team and know the norms of teams.
5. Have the ability to communicate clearly and concisely in oral communication and in written documents
6. Demonstrate mastery of basic business law.
7. Be able to explain business ethics to the ethical questions encountered.
8. Have the ability to solve rudimentary accounting issues as needed.
9. Have some knowledge of advertising, marketing and public relations practices.

8. CURRENT ENROLLMENT:

Certificate: 46

AAS: 59

9. FULL-TIME EQUIVALENCY:

Certificate: 31.67

AAS: 45.07

10. NUMBER OF FACULTY: 2 full time and 7 other faculty are named who are or have been dual credit or adjunct

11. STUDENT TO FACULTY RATIO:

Certificate 46:2

AAS: 59: 2HLC

12. JOB PLACEMENT RATE:

Certificate: 50%

AAS: 100%

13. RESULTS OF PROGRAM ASSESSMENT:

Measured the goal of emphasizing heavily the importance of communication skills and their relevance to all areas of business. Direct and indirect methods were used to measure this goal. 96 students were given a pre-assessment. 93% of those students (90) passed. 6 students either withdrew or quit. The students surpassed expectations.

Measured goals:

- Introduction of Administrative Office Specialist environment along with challenges in this field. 80% mastery
- Prepare the student to meet the challenges of becoming involved in promoting a workable climate, especially at a time when there is a large demand for knowledgeable people in this field. 80% mastery
- Understand the importance of producing accurate and fast correspondence. 80% mastery
- Correctly calculate, using the calculator and computer figures related to business and office procedures. 80% mastery
- Offer opportunities in the areas of job placement and internships. 80% mastery
- Introduce new technology in relation to office work, in word processing, records management and office management. 80% mastery

14. CONTINUOUS IMPROVEMENT BASED ON ASSESSMENT RESULTS:

Based on the post assessment outcomes the program will continue to stress professionalism, attendance, attitudes, work ethic and accuracy in production.

Since the last Program Review in 2014 the AOS faculty has reviewed their courses and continues to update their offerings to provide students with the necessary skills to compete in the market. The proposed Business School is an outgrowth of collaborative co-curricular efforts.

15. REVENUE GENERATED FROM THE PROGRAM: The AOS program provides free typing tests to people seeking employment. They certify their speed and accuracy. This is a requirement for anyone seeking employment with the Navajo Nation offices. This service does not generate funds, but is looked upon as a valuable community service.

The AOS program is sought out for administrative interns for on campus programs.

16. PROGRAM BUDGET: \$89,710

17. COMPLETION RATE: 16%

18. GRADUATION RATE: 33%

19. RETENTION RATE:

- Fall 2014: Certificate: 46%
- Fall 2014: AAS: 52%
- Fall 2015: Certificate: 17%
- Fall 2015: AAS: 38%
- Fall 2016: Certificate: 40%
- Fall 2016: AAS: 82%

20. PERSISTENCE RATE:

- Spring 2014: Certificate: 72%

- Spring 2014: AAS: 76%
- Spring 2015: Certificate: 49%
- Spring 2015: AAS: 57%
- Spring 2016: Certificate: 49%
- Spring 2016: AAS: 55%
- Spring 2017: Certificate: 57%
- Spring 2017: AAS: 80%

21. SPACE UTILIZATION ANALYSIS: The room is adequate in size, but would provide opportunities for diverse learning styles if rearranged.

22. RECOMMENDATIONS:

- Reactivate the Advisory Council
- Redesign the classroom to allow for alternate learning environments
- Update the software
- Pursue AES Certification
- Continue to increase opportunities in job placement and internships.
- An additional instructor. The program has a large enrollment. To better meet the goals of NTU to provide a high-quality, student-oriented, hands-on environment an additional instructor is necessary.
- Updated office equipment: a copier and printer, and a large table.
- Pursue a Virtual Assistant program in collaboration with IT

**APPLIED COMPUTER TECHNOLOGY, CERTIFICATE
PROGRAM REVIEW
SPRING 2017**

(As of the fall of 2016 The Applied Computer Technology Certificate program is no longer an independent program and has been included in the IT program that is scheduled for a full program review in Fall of 2017. The current program review is for background information.)

1. INTRODUCTION

As part of Navajo Technical University's (NTU) commitment to the cycle of planning and evaluation a rigorous program review process is used. Each program at NTU has been reviewed once in every three (3) years by an external consultant to determine if a program is viable or if any changes need to be made in the curriculum.

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Computer networks are critical parts of almost every organization. Network and computer systems administrators are responsible for the day-to-day operation of these networks.

Employment of network and computer systems administrators is projected to grow nationally 8 percent from 2014 to 2024, about as fast as the average for all occupations. Demand for information technology workers is high and should continue to grow as firms invest in newer, faster technology and mobile networks.

In New Mexico, Computer Systems Analysts are considered to be one of the fastest growing occupations. They have among the best job opportunities in New Mexico.

Each month information technology specialist positions are listed as job opportunities in one or more of the divisions of the Navajo Nation.

The national median annual wage for network and computer systems administrators was \$79,700 in May 2016. In New Mexico the median wage was \$73,450.

Job Outlook (2012-2022)	Computer Support Specialist 17%	Network Administrator 12%	Systems Analyst 25%	Systems Manager 15%
Required Education	Associate's or bachelor's degree; postsecondary classes may suffice	Bachelor's degree; some employers may accept a postsecondary certificate	Bachelor's degree; an MBA may be preferred by employers	Bachelor's degree; a graduate degree may be required by some employers
Key Skills	Ability to solve problems and to speak, write, and listen well	Ability to multitask, communicate, and solve problems	Ability to communicate, analyze information, and think creatively	Ability to organize, make decisions, and lead others
Similar Occupations	Customer service representative, computer network architect	Computer hardware engineer,	Information security analyst, management analyst	Database administrator, top executive

		computer programmer		
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2. NAME OF PROGRAM: APPLIED COMPUTER TECHNOLOGY
3. NAME OF DEPARTMENT: SCHOOL OF APPLIED TECHNOLOGY
4. DATE OF LAST REVIEW: This program was not reviewed separately
5. DATE OF CURRENT REVIEW: MAY 2017

6. PROGRAM MISSION: The mission of the Computer Science program is to prepare students for the highly technical and innovative field of computational science. More specifically, certain skill sets will be acquired in the program that will allow graduates to have an impact at all levels. Graduates of the program will be able to contribute to every aspect of the field and infrastructure necessary to allow massively parallel computations to occur.

7. PROGRAM GOALS:

Graduates will be able to:

 - Implement and maintain massively parallel clusters
 - Write and support massively parallel software
 - Implement and maintain the infrastructure necessary to support massively parallel computation that spans from the workstation to virtualized data center designs
 - Work competently and collaboratively using effective research techniques to synthesize contextually relevant solutions to any given problem
 - Develop self-directed projects that synthesize creative and technical methodologies to solve problems
 - Conceptualize, implement and evaluate solutions for a wide range of computationally intensive applications
 - Communicate effectively with peers and superiors about relevant application of technologies to solve problems

8. CURRENT ENROLLMENT: There is no enrollment recorded for this program for Spring 2017. (The IT Certificate program has 13 students)

9. FULL-TIME EQUIVALENCY: 1.60

10. NUMBER OF FACULTY: None for this program in Spring of 2017

11. STUDENT TO FACULTY RATIO: 2:1

12. JOB PLACEMENT: Not recorded for this program in Spring of 2017

13. RESULTS OF ASSESSMENT: Not available for Spring of 2017

14. CONTINUOUS IMPROVEMENT BASED ON ASSESSMENT RESULTS: The program has been incorporated into the larger IT program to provide more consistent and collaborative possibilities within the curriculum.
15. REVENUE GENERATED FROM THE PROGRAM: No additional revenue sources for this program.
16. PROGRAM BUDGET: Not separated from the IT Budget.
17. COMPLETION RATE: 14%
18. GRADUATION RATE: 0% within 150% completion. (Cohort 2015, 8 students enrolled)
19. RETENTION RATE:
 - Fall 2014: 25%
 - Fall 2015: 0%
 - Fall 2016:13%
20. PERSISTENCE RATE:
 - Spring 2014: 75%
 - Spring 2015: 25%
 - Spring 2016: 38%
 - Spring 2017: 0%
21. SPACE UTILIZATION ANALYSIS: Will be addressed in the Fall 2017 IT Program Review
22. RECOMMENDATIONS: Will be addressed in the Fall 2017 IT Program Review

AUTOMOTIVE TECHNOLOGY, CERTIFICATE AND AAS PROGRAM REVIEW 2017

1. INTRODUCTION

As part of Navajo Technical University's (NTU) commitment to the cycle of planning and evaluation a rigorous program review process is used. Each program at NTU has been reviewed once in every three (3) years by an external consultant to determine if a program is viable or if any changes need to be made in the curriculum.

The first step in NTU's program review is an environmental scan that enables the administration and faculty to understand the external environment and interconnections of various sectors of the community and industries. The University uses the environmental scans for planning and decision-making processes.

This program draws students to the campus where they develop skills and the confidence to move on to other programs and departments. It is also a program which provides a valuable community service.

There is a demand for students who graduate. Employment of automotive service technicians and mechanics is projected to grow 5 percent from 2014 to 2024, about as fast as the average for all occupations. Job opportunities for qualified jobseekers should be good. Employers prefer that automotive service technicians and mechanics complete a formal education program at a postsecondary institution. Industry certification is usually required once the person is employed.

The Navajo Nation regularly posts jobs for Automotive Technicians.

In New Mexico, automotive service technicians are among the occupations with the most annual job openings. Annual mean wage in New Mexico is \$37,730

2. NAME OF PROGRAM: Automotive Technology, Certificate and AAS
3. NAME OF DEPARTMENT: School of Applied Technology
4. DATE OF LAST REVIEW: Spring 2013
5. DATE OF CURRENT REVIEW: May 2017

6. PROGRAM MISSION:
Automotive Technology is committed to a high quality, student-oriented, hands-on learning environment based on the Dine cultural principles: Nitsahakees, Nahata, Iina, Siihasin.

7. PROGRAM GOALS:
To apply and coordinate National 2013 ASE/NATEF standardized instructional curriculum.

8. CURRENT ENROLLMENT:
Certificate: 34
AAS: 21

9. FULL-TIME EQUIVALENCY:
Certificate: 28
AAS: 17.07

10. NUMBER OF FACULTY: 1

11. STUDENT TO FACULTY RATIO:
Certificate: 34:1
AAS: 21:1

12. JOB PLACEMENT RATE:

Certificate: 83%
AAS: 33%

13. RESULTS OF PROGRAM ASSESSMENT:

All students were exposed to about 80% of the required tasks for each class. We did not meet our benchmark because some of the work required for the hands-on activities was not to be found in our small vehicle inventory or our live customer repair activities.

14. CONTINUOUS IMPROVEMENT BASED ON ASSESSMENT RESULTS:

To continue to strive to provide the necessary equipment, tools and materials for students to be able to learn all the necessary skills on all types of vehicles.

15. REVENUE GENERATED FROM THE PROGRAM: A major grant was received from the Walmart foundation in 2015. No revenue is currently being generated. There are models of programs around the country that charge small fees for services provided by the students. The program will explore what the necessary administrative and structural support would be for such a program.

16. PROGRAM BUDGET: \$156,979

17. COMPLETION RATE: 28%

18. GRADUATION RATE: 27%

19. RETENTION RATE:

- Fall 2014: Certificate: 40%
- Fall 2014: AAS: N/A
- Fall 2015: Certificate: 27%
- Fall 2015: AAS: N/A
- Fall 2016: Certificate: 50%
- Fall 2016: AAS: 40%

20. PERSISTENCE RATE:

- Spring 2014: Certificate: 69%
- Spring 2014: AAS: N/A
- Spring 2015: Certificate: 67%
- Spring 2015: AAS: N/A
- Spring 2016: Certificate: 39%
- Spring 2016: AAS: 100%
- Spring 2017: Certificate: 56%
- Spring 2017: AAS: 89%

21. SPACE UTILIZATION ANALYSIS:

- Triple the space is required to perform the work.
- The space needs to be reconfigured and set up to handle waste from vehicles.
- NATEF requires a fenced in area.

22. RECOMMENDATIONS:

- More modern vehicles to finish required tasks.
- Incorporation of new software.
- Updated equipment.
- An additional instructor
- Continue to pursue ASE/NATEF certification
- Create an advisory council

BUILDING INFORMATION MODELING, AAS PROGRAM REVIEW SPRING 2017

1. INTRODUCTION

As part of Navajo Technical University's (NTU) commitment to the cycle of planning and evaluation a rigorous program review process is used. Each program at NTU has been reviewed once in every three (3) years by an external consultant to determine if a program is viable or if any changes need to be made in the curriculum.

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The Building Information Modeling AAS builds capital for individuals in the pre-engineering field. The students develop skills which help them to advance themselves to a BA or MA. Their skills prepare them to participate in a growing planning sector relating to issues including urban and rural development, climate change, health and epidemiology. It is a field which is in demand in the country and on the Navajo Nation. Students from this program have found employment with the Chinle Hospital, Navajo Housing Authority and are pursuing higher degrees.

The Diné Philosophy of Education (DPE) is incorporated into every class for students to become aware of and to understand the significance of the four Diné philosophical elements, including its affiliation with the four directions, four sacred mountains, the four set of thought processes and so forth: Nitsáhákees, Nahát'á, Íina and Siih Hasin which are essential and relevant to self-identity, respect and wisdom to achieve career goals successfully.

This program adds more than technological knowledge. The students are involved in community development, understanding the housing issues on the Nation, urban and rural development and participatory design. The program works with the Navajo Nation and

the Department of Health and Epidemiology. Outside presenters are invited to share their experience in the field and to provide networking possibilities for the students.

The faculty has a transferable articulation agreement with the UNM School of Architecture and Planning. This is a pathway for NTU students to continue advancing their studies by transferring into the BA in Environmental Planning and Design at the University of NM School of Architecture and Planning. There is also a collaborative project with University of Utah Master's in Architecture program. It is a hands-on project to develop construction drawings with a focus on Navajo architecture.

The global BIM market is expected to grow from USD 3.58 billion in 2017 to USD 7.64 billion by 2022, at a CAGR of 16.51% during the forecast period.

The enhanced communication and coordination through the asset lifecycle management process and government mandates for the usage of building information modeling in several developed countries are some of the major drivers for the BIM market. However, high costs of building information modeling software required for the execution of various construction processes and long training periods contributing to a decrease in the productivity of the construction companies are the key factors that are restraining the growth of the BIM market.

The BIM market for services is expected to grow at the highest rate during the forecast period. The benefits offered by integrated BIM services in the construction process such as 2D drawings, 3D modeling, 4D scheduling, and 5D estimating power; and change management, clash management, visualization, layout, quantity take off, scheduling, and production control are expected to propel the growth of the BIM market for services. However, the building information modeling software segment is expected to hold largest market share of the BIM market between 2017 and 2022.

In New Mexico, there is steady projected growth. There are job listings at national laboratories and research and technology companies. The Navajo Nation occasionally posts job openings.

2. NAME OF PROGRAM: Building Information Modeling, AAS
3. NAME OF DEPARTMENT: Engineering, Math and Technology
4. DATE OF LAST REVIEW: Not reviewed previously
5. DATE OF CURRENT REVIEW: May 2017

6. PROGRAM MISSION:
The mission for the AAS Building Information Modeling program is to prepare students with hands-on skills and knowledge in BIM management, technical skills, and sustainable building material products. Students will become efficient and skillful, creating 2D/3D models from point cloud data utilizing Autodesk-Revit, Autodesk-AutoCAD, Autodesk-ReCAP and FARO-Scene software. Students are encouraged to

explore and layer additional software to strengthen their methodologies, applications and portfolio.

Striving to extend student's educational goals and experiences beyond in-class assignments and develop collaborative educational pathways/projects/internships with local organizations and academic institutions. Students are prepared for network opportunities with surrounding employers to strengthen their communication skills, network capacity, and plan for their future career after NTU.

7. PROGRAM GOALS:

- Work competently in a variety of BIM, AutoCAD and laser scanning environments
- Conceptualize and implement efficient BIM, AutoCAD, and laser scanning methods utilizing drafting techniques
- Self-evaluation accurate drafting measurements/applications, and communication output(s)
- Present quality written, oral and visual communication skills displaying detailed information and ideas in a clean and organized presentation
- Examine and participate in group assignments to build effective collaboration skills and comfort.
- Develop self-directed projects and master 2D/3D software and laser scanning applications to present creative, technical and critical methods.

8. CURRENT ENROLLMENT: 15

9. FULL-TIME EQUIVALENCY: 12.13

10. NUMBER OF FACULTY: 1

11. STUDENT TO FACULTY RATIO: 15:1

12. JOB PLACEMENT RATE: 100%

Students are finding jobs at the Navajo Housing Authority and Chinle Hospital. Some students are continuing their education in the Advanced Manufacturing BA program and in the BA program at Fort Lewis.

13. RESULTS OF PROGRAM ASSESSMENT:

In the fall of 2016 assessments were made on two Program Goals:

AutoCAD

Architectural Drafting

In the pretests students showed very low understanding and capacity.

In the post-tests 80% of the students displayed mastery of the material.

14. CONTINUOUS IMPROVEMENT BASED ON ASSESSMENT RESULTS:

An updated curriculum has been created based on the assessment results. The program will continue to pursue collaborated student based projects within NTU and with local organizations and academic institutions.

15. REVENUE GENERATED FROM THE PROGRAM: No revenue has been generated.

16. PROGRAM BUDGET:

\$659,198 – this is a composite budget for the Digital Technology Center and BIM for 2017-2018 the budget for BIM will be separated out and listed on its own

17. COMPLETION RATE: 8%

18. GRADUATION RATE: This program began in 2013, therefore this program will not be included in the IPEDS graduation rate until 2020.

19. RETENTION RATE:

- Fall 2014: 20%
- Fall 2015: 27%
- Fall 2016: 58%

20. PERSISTENCE RATE:

- Spring 2014: 48%
- Spring 2015: 53%
- Spring 2016: 38%
- Spring 2017: 58%

21. SPACE UTILIZATION ANALYSIS:

- There is not enough space. It is shared with 4 or 5 other classes.
- There is no security for the computers so that when an unauthorized program is used, the BIM computers are shut down and the students, whose entire work is dependent on internet access, have no access to the necessary programs.
- There is no meeting space.
- There is no private space.

22. RECOMMENDATIONS:

- Administrative Support
- Reliable internet
- Meeting space
- Dedicated classroom space with 15 dedicated computers
- Create an Advisory Council

EARLY CHILDHOOD AND MULTICULTURAL EDUCATION
PROGRAM REVIEW
SPRING 2017

1. INTRODUCTION

As part of Navajo Technical University's (NTU) commitment to the cycle of planning and evaluation a rigorous program review process is used. Each program at NTU has been reviewed once in every three (3) years by an external consultant to determine if a program is viable or if any changes need to be made in the curriculum.

The first step in NTU's program review is an environmental scan that enables the administration and faculty to understand the external environment and interconnections of various sectors of the community and industries. The University uses the environmental scans for planning and decision-making processes.

The importance of early childhood education is consistently being reinforced by research and experience.

The community need on the Navajo Nation is great.

The numbers of students who choose this program are among the highest on the campus.

The program operates within NAEYC standards and has a recently updated curriculum. The program brings presenters who are actively working in the field to help to expand students understanding of the profession.

The Multicultural Education portion of the program is important to expand cultural awareness among students. Only 50% of students are raised traditionally.

Faculty participate in the Navajo Nation Teacher Consortium and the State of New Mexico Higher Education Early Childhood Section.

Students are given opportunities for hands-on experience in the community.

The Bureau of Labor Statistics reports that early childhood jobs are expected to grow 7% from 2014-2024.

The average wage for early childhood workers in New Mexico is \$31,500.

Every month the Navajo Nation has job postings for Head Start Teachers and assistants.

2. NAME OF PROGRAM: Early Childhood and Multicultural Education, AS and BA

3. NAME OF DEPARTMENT: Business and Education

4. DATE OF LAST REVIEW: Fall 2012

5. DATE OF CURRENT REVIEW: May, 2017

6. PROGRAM MISSION:

The Early Childhood Program will educate students to become proficient in the Early Childhood Profession, to advocate for the safety, health and wellbeing of all young children from birth to eight years old. Students will learn and demonstrate the core competencies using the Navajo Philosophy of Learning so they can interact effectively with children.

7. PROGRAM GOALS:

- To improve the students' educational level and become early childhood professionals in a multicultural setting.
- To understand and demonstrate all domains, including physical, emotional, social and cognitive developments using Development Appropriate Practice.
- To promote excellence in Early Childhood Education in all schools and career settings.

8. CURRENT ENROLLMENT: AS: 72
BS: 70

9. FULL-TIME EQUIVALENCY: AS: 56.13
BS: 50.87

10. NUMBER OF FACULTY: 3 full time and 7 faculty have or are dual credit or adjunct

11. STUDENT TO FACULTY RATIO:
AS: 72:3
BS: 70:3

12. JOB PLACEMENT RATE:
AS program: 60%
BS program: 50%

13. RESULTS OF PROGRAM ASSESSMENT:

In the Fall of 2016 assessments were made on the goal of using Development Appropriate Practice. The post test showed mastery of the material and terminology. Presentations were referenced as valuable learning tools for the students.

A sophisticated assessment tool has been created to measure whether the students have understood what the curriculum was teaching and knew the skills necessary to work successfully in early childhood settings. Most of the students showed mastery in understanding and skills.

14. CONTINUOUS IMPROVEMENT BASED ON ASSESSMENT RESULTS:

The Assessment tool is being used by all faculty in the program and all are pleased with the information it provides. It will continue to be refined and the results will be incorporated into curriculum changes as necessary.

Presenters will continue to be included in the program.

15. REVENUE GENERATED FROM THE PROGRAM: N/A

16. PROGRAM BUDGET:

AS: \$107,828
BA: \$53,923

17. COMPLETION RATE: 16%

18. GRADUATION RATE: 18%

19. RETENTION RATE:

- Fall 2014: AS: 51%
- Fall 2014: BA: 75%
- Fall 2015: AS: 41%
- Fall 2015: BA: 68%
- Fall 2016: AS: 54%
- Fall 2016: BA: 88%

20. PERSISTENCE RATE:

- Spring 2014: AS: 67%
- Spring 2014: BA: 75%
- Spring 2015: AS: 52%
- Spring 2015: BA: 82%
- Spring 2016: AS: 61%
- Spring 2016: BA: 65%
- Spring 2017: AS: 56%
- Spring 2017: BA: 92%

21. SPACE UTILIZATION ANALYSIS:

- An additional classroom is needed.
- An early childhood model corner is also needed.

22. RECOMMENDATIONS:

- Increased support for opportunities for out in the field observations
- Develop an early childhood center model corner
- Increase the number of updated videos available to students
- An expedited purchase order process could improve the ability to have necessary materials available
- Improved internet reliability
- Activate an Advisory Board
- More job placement assistance and information
- An additional full-time faculty member
- To develop revenue and provide hands-on opportunities for the students the possibility of a lab school/day care on campus could be explored
- A consistent budgeting process could help the program make long term goals

Fall 2016 Program Review

NAVAJO TECHNICAL UNIVERSITY CREATIVE WRITING AND NEW MEDIA BFA SCHOOL OF ARTS AND HUMANITIES PROGRAM REVIEW – FALL 2016

Our global culture has moved from text-dominant to multimedia based modes of perceiving, knowing and communicating. It is important for Navajo students to become versed in these processes and literacies for 21st century competence and as participating and media savvy citizens while being taught in the Dine philosophy.

MISSION

The Creative Writing and New Media BFA at Navajo Technical University has as its mission to develop skilled writers who also have the knowledge and skills needed to secure gainful employment in a digital environment, to publish and market creative works online, to function as a full participant in this new digital age and to foster the continuance of the narrative legacy of the Navajo people and expand their reach into the digital realm. Students will become effective in digital sound design, digital video production and post-production, 2D and 3D animation, visual graphic arts, and web design. Students will be introduced to the history, principles and theories of film, visual arts, media criticism, ethics and sensory perception. Students will receive a hands-on approach to learning and will be challenged to apply their artistic creativity in the production of digital media.

PROGRAM GOALS

- Develop skilled writers who are technologically savvy.
- Foster the continuance of the narrative legacy of the Navajo people
- Work competently in a variety of digital media environments
- Conceptualize, implement and evaluate substantial, meaningful and purposeful projects using digital media techniques.
- Evaluate ethical and legal considerations in working with digital media.
- Use written, oral and visual communication skills to communicate information and ideas about new media.
- Critique studio practice in relation to contemporary innovations in technology and art.
- Examine and participate in virtual environments.
- Describe the techno-cultural discourse surrounding new-media technologies and practice.
- Work in collaborative environments.
- Develop self-directed projects that synthesize creative, technical and critical approaches.

PROGRAM STATISTICS

FALL 2016

- Current enrollment: 11
- Full-time equivalency: 10.2

- Persistence rate from Spring 2016: 100%
- Retention rate: 75%
- Number of faculty: 2
- Student to faculty ratio: 2:11
- Job placement rate: 50%

NO PREVIOUS PROGRAM REVIEW WAS CONDUCTED

RESULTS OF PROGRAM ASSESSMENT

The BFA is a new program so the assessments were made for Creative Writing and New Media separately. There is no previous program review for the BFA.

Foster the continuance of the narrative legacy of the Navajo people:

- Students produced a portfolio of creative work including non-fiction, fiction, poetry and playwriting. The student work in fiction was assessed using a rubric. Students also participated in workshops where they presented their work and received written and verbal feedback from their peers as well as the instructor. The student was then expected to incorporate that feedback into their revision(s) which were required.
- There was a pre-assessment based on writing samples that the students submitted and that were evaluated using a rubric. Of the 12 samples submitted, 6 or 50% of the samples scored 30 points or higher. The expectation was that 70% of the students would score 30 or higher on their portfolios using the same rubric at the end of the semester.
- Of the 12 students, 11 samples were submitted and evaluated and of those 10 (about 90%) scored 30 points or higher. The students exceeded the 70% benchmark.
- Include more reading(s)/samples earlier in the course, facilitate more discussions, present more lectures and incorporate more workshops. The challenge always is to find new and better writing samples. The intent is to introduce as many models of good writing as possible and to give students the opportunity to discuss what they see in these pieces, with the aim of having them consider new techniques and possibilities in their own work. These changes will help produce better read, skilled writers that are able to produce successful pieces of writing in the genre of their choice.

Work competently in a variety of digital media environments

- The New Media course of study is relevant to skills in the workplace. Students described the Digital Video I and II courses as “intriguing” and important “basics” to know. “All . . . media classes were beneficial,” according to one student.
- The New Media course of study provides relevant introductory coursework across a variety of creative disciplines, including sound design, digital video production, animation, graphic design. Students expressed varying interests from screenwriting, directing, to musicianship and film producing. (Note: a screenwriting course is offered by the Humanities Department and is part of the Creative Writing BFA course of study.
- Students like classes that helped them learn about themselves. New Media courses like Digital Ethics and Media Criticism – critical thinking and analysis courses – help students think about media and learn about themselves.
- Based on the survey, average student responses “Agreed” that the NTU New Media program prepared them well for a career in New Media. One student felt that the course curriculum prepared them well for their internship and for skills needed in the workplace.

- Based on the survey, students rated the NTU program at 7.875 (10 being the highest) in terms of their satisfaction with instructors, coursework, student/teacher interaction, scheduling and other related services and resource

Work in collaborative environments:

- Students found it difficult “getting people (i.e. students, faculty, etc.) together” for producing media projects. Students recommended the following to improve in this area:
- Greater student/faculty involvement in projects for hands-on experience
- Increased interactivity between New Media students for project based assignments.
- More on campus school-sponsored projects that involve New Media students collaborating with programs, the NTU Marketing Department, school clubs, etc.
- Develop self-directed projects that synthesize creative, technical and critical approaches.
- Based on a review of the New Media Degree checklist, the following capstone/senior project courses are required for graduation: 1) Interactive Project, 2) Sound Design Project and 3) Senior Project A and B. These courses fulfill the aims of Program Goal Measure #3 by providing students with the opportunity to synthesize creative, technical and critical approaches by involving faculty, staff and students in a multidisciplinary approach to a video, sound and IT interactive project.

Continuous improvement based on assessment results:

- Continue to use workshops and portfolios to assess students’ learning. The instructor will continue to explore other options, including through attending the Association of Writing Programs Conference in March.
- The instructor will include more project-based assignments, allowing for more interaction between students within and without the class.
- Require students to “pitch” project ideas to the class.
- Instructor will encourage past students to volunteer, participate, present, provide tutorials, network and lead select portions of class.
- Instructor will invite guest lecturers – professionals, other instructors – to present to students.
- On a case by case basis, the Instructor will provide students with credit to complete school sponsored New Media projects as part of their requirements

RECOMMENDATIONS

- Continue to expand collaborations between this program and other programs on campus.
- Increase the number of internships available.
- Provide increased opportunities for student productions to be shared on campus.
- Continue collaboration with the Business Incubator.
- Increase the number of project based assignments.
- Provide increased opportunities to share the digital expression of the narrative legacy of the Navajo people.

OCCUPATIONAL OUTLOOK

A Creative Writing and New Media BFA will produce students with a variety of hard skills and soft skills which will be marketable in a number of different occupations.

Writers and authors develop written content for advertisements, books, magazines, movie and television scripts, songs, blogs, or other types of media. A college degree is generally required for a full time position as a writer or author. Experience can be gained through internships, but any form of writing that improves skill, such as blogging, is beneficial. Excellent writing skills are essential.

Writers and authors work in an office, at home or anywhere else they have access to a computer. Most work full time. However, self-employed and freelance writers usually work part time or have variable schedules. About 2 in 3 were self-employed in 2014.

Employment of writers and authors is projected to grow 2 percent from 2014 to 2024, slower than the average for all occupations. Strong competition is expected for full time jobs because many people are attracted to this occupation.

The national median annual wage for writers and authors was \$60,250 in May 2015.

Multimedia artists and animators create animation and visual effects for television, movies, video games and other forms of media.

Most multimedia artists need a bachelor's degree to develop both an impressive portfolio of work and the strong technical skills that many employers prefer. A little more than one-half of workers are self-employed. Employment of multimedia artists and animators is projected to grow 6 percent from 2014 to 2024, about as fast as the average for all occupations. Projected growth will be due to increased demand for animation and visual effects in video games, movies and television.

The national median annual wage for multimedia artists and animators was \$63,970 in May 2015.

Film and video editors and camera operators manipulate moving images that entertain or inform an audience. They typically work in studios or in office settings. They typically need a bachelor's degree. Employment of film and video editors and camera operators is projected to grow 11 percent from 2014 to 2024, faster than the average for all occupations. Production companies and video freelancers are working with new content delivery methods, such as mobile devices or through online TV, which may lead to more work for editors and camera operators.

The national median annual wage for film and video editors and camera operators was \$55,740 in May 2015.

Reporters, correspondents and broadcast news analysts inform the public about news and events happening internationally, nationally and locally. They report the news for newspapers, magazines, websites, television and radio. They spend a lot of time in the field, conducting interviews and investigating stories. The work is often fast paced, with constant demands to meet deadlines and to be the first reporter to publish a news story on a subject. Employers prefer workers who have a bachelor's degree along with an internship or work experience from a college radio, television station or newspaper. Employment of reporters, correspondents and broadcast news analysts is projected to decline 9 percent from 2014 to 2024. Declining advertising revenue in radio, newspapers and television will negatively impact the employment growth for these occupations.

The national median annual wage for reporters, correspondents and broadcast news analysts was \$37,720 in May 2015.

In New Mexico employment in the information industry is projected to be relatively flat between 2010 and 2020. The telecommunications subsector and graphic designer subsector

are projected to be the only subsectors adding a significant number of jobs. The remaining subsectors are not expected to generate a large number of jobs through 2020.

**ELECTRICAL ENGINEERING BS
SCHOOL OF ENGINEERING, MATH AND TECHNOLOGY
PROGRAM REVIEW – FALL 2016**

The mission of NTU is to provide university readiness programs, certificates, associate, baccalaureate and graduate degrees. Students, faculty and staff will provide value to the Dine community through research, community engagement, service learning and activities designed to foster cultural and environmental preservation and sustainable economic development.

Electrical engineers design, develop, test, and supervise the manufacturing of electrical equipment, such as electric motors, radar and navigation systems, communications systems, and power generation equipment.

Electrical engineers work in industries including research-and development, engineering services, manufacturing, telecommunications, and the federal government.

Electrical and electronics engineers must have a bachelor's degree. Employers also value practical experience, so participation in cooperative engineering programs, in which students earn academic credit for structured work experience.

The subsectors where there is projected growth are in mining and oil and gas, construction and independent electrical contractors. These subsectors are active on the Navajo Nation.

The Electrical Engineering program is making continuous improvement to its curriculum to meet best practice standards and to achieve ABET accreditation.

MISSION

- To establish the first ABET accredited Electrical Engineering BS program at a Tribal institution.

PROGRAM GOALS

- Students learn industry skills and practices incorporated into their courses.
- Upper level students participate in residential projects
- All graduates will find rewarding and fulfilling employment related to their education
- Some students will pursue graduate education
- Some students will start native owned businesses

PROGRAM STATISTICS

Fall 2016

- Previous enrollment: Fall 2013 – 3, Spring 2014 – 6, Fall 2014 -10, Spring 2015 -12, Fall 2015 – 21, Spring 2016 – 36
- Current Enrollment: 23
- Full-time Equivalent: 20.9
- Number of Faculty: 1
- Student to Faculty ratio: 23:1
- Persistence rate: 90%
- Retention rate: 81%
- Job placement rate: Not available

NO PREVIOUS PROGRAM REVIEW WAS CONDUCTED

RESULTS OF PROGRAM ASSESSMENT

- No assessment results were available due to there being only one faculty member

RECOMMENDATIONS

- Hire two additional faculty members
- Provide a dedicated classroom and lab space for Electrical Engineering
- Continue to provide access to internships and summer employment.
- Achieve and maintain ABET accreditation

OCCUPATIONAL OUTLOOK

- Electrical engineers must have a bachelor's degree. Employers also value practical experience, so participation in cooperative engineering programs, in which students earn academic credit for structured work experience.
- The median national annual wage for electrical and electronics engineers was \$95,230 in May 2015.
- Nationally employment of electrical engineers is projected to show little or no change from 2014 to 2024. Change in employment is expected to be tempered by slow growth or decline in most manufacturing sectors in which electrical engineers are employed.
- In New Mexico employment growth of engineering occupations is expected to be less than the average. Between 2010 and 2020 jobs for electrical engineers are projected to grow by 10.5% with the most reliable growth in the mining and oil and gas sectors.
- New Mexico is receiving a great deal of attention from solar panel manufacturers looking at setting up operations due to New Mexico's labor force and favorable business climate. However, foreign competition and uncertain subsidies have made this a volatile industry in New Mexico. The aerospace industry is another industry to watch. New Mexico does not have an employment data series specific to this emerging industry, although many of its workers are classified under manufacturing. The addition of Spaceport America at Upham, New Mexico, is certainly breaking new ground in an industry for which there is no historic data to input into our economic models. New developments include the announced construction and/or permitting of several spaceports around the country. Without industry data, it is difficult to determine the level of demand for spaceport

services versus the level of supply.

**GEOGRAPHIC INFORMATION TECHNOLOGY (GIT)
CERTIFICATE AND AAS
SCHOOL OF ENGINEERING, MATH AND TECHNOLOGY
PROGRAM REVIEW – FALL 2016**

GIT is a field that planners, governmental authorities, environmental entities and just about anyone working and developing any projects that entail the natural or built world need to use. For the Navajo Nation GIT is critical in planning, identifying needs in the communities, water resources and almost any project that chapter houses might have that pertains to the vast landscape that authorities are dealing with.

GIT facilitates critical spatial thinking skills and helps to understand the complexities of spatial problems that face our world today. GIT teaches how to use technology to answer important questions as well as teaching the continually developing technology itself.

College programs need to be on top of all new software so that students are familiar with what is most used in the field. Real world experience in this career path is the most important factor in being able to be competitive in the job market.

The NTU GIT program is ensuring that it is offering the best in curriculum and hands on experiences. The relationships with NASA, Sandia National Laboratory, the US Forest Service and USGS as well as other institutions are important in keeping the program up to date and providing networking opportunities for the students.

MISSION

The Geographic Information Technology(GIT) program will serve to introduce students to the fundamental principles of geographic information systems, remote sensing, database applications, cartography, and enable students to understand the current state of knowledge residing in a geographic information system. The GIT program seeks to ready student for positions with governmental agencies, engineering companies, and topographical drafting organizations. Through the knowledge they receive from this program, they will also be capable of finding employment in a GIT department.

PROGRAM GOALS

- Introduce students to computer systems that are used for GIT
- Build an understanding of map applications through terminology, common place map building essentials, tutorials for GIT software and map creation.
- Understand the basics of project management

- Create a portfolio of maps completed showing understanding of map design concepts and spatial understanding

PROGRAM STATISTICS

FALL 2016

- Previous enrollment: Fall 2013 – 2, Spring 2014 – 3, Fall 2014 – 3, Spring 2015-3, Fall 2015 – 4, Spring 2016 - 4
- Current Enrollment: 3 AAS, 5 Certificate
- Full time Equivalency: 3.6
- Number of Faculty: 1
- Student to Faculty ratio: 8:1
- Persistence Rate: 75%
- Retention Rate: 25%
- Job Placement Rate: NOT AVAILABLE

PREVIOUS PROGRAM REVIEW WAS SPRING 2015

RESULTS OF PROGRAM ASSESSMENT

- Continued need for higher level math courses and better preparation.
- Continued need to keep up with software advances.
- Continued need for more computers to be available for students with longer hours of access.
- Continued need to coordinate among programs for a basic STEM curriculum for first year students.

RECOMMENDATIONS

- Higher level math courses need to be offered and students need better math preparation.
- More computers need to be available to students for more hours per day.
- GIT should continue to collaborate with other programs, other institutions and give students more real world experiences.
- GIT needs to keep up with software advances.

OCCUPATIONAL OUTLOOK

- Surveying and mapping technicians collect data and make maps of the Earth's surface. Surveying technicians visit sites to take measurements of the land. Mapping technicians use geographic data to create maps. They both assist surveyors, cartographers, and photogrammetrists.
- Surveying technicians work outside extensively and can be exposed to all types of weather. Mapping technicians work primarily indoors on computers. Most surveying and mapping technicians work for firms that provide engineering, surveying, and mapping services on a contract basis. Local governments also employ these workers in highway and planning departments.
- Mapping technicians need formal education after high school to study technology applications, such as Geographic Information Systems (GIS).

- The median national annual wage for surveying and mapping technicians was \$42,010 in May 2015.
- Employment of surveying and mapping technicians is projected to decline 8 percent nationally from 2014 to 2024. Advancements in surveying technology have increased productivity, reducing demand for surveying technicians.
- In New Mexico the job outlook for GIT is positive. Jobs are projected to grow by 20.4% between 2010 and 2020.

**PROFESSIONAL BAKING CERTIFICATE AND
COMMERCIAL BAKING AAS
SCHOOL OF APPLIED TECHNOLOGY
PROGRAM REVIEW – FALL 2016**

Professional baking provides the opportunity to combine art and technique in a career which is part of every community in every part of the world. The skills that are learned will be of lifelong value. The program at NTU teaches these skills and then provides opportunities for students to offer them to a wider community on and off the Navajo Nation.

MISSION

We are committed to serve and support the success of our students through highly personalized instruction, guiding them through the Dine philosophy of education. The Professional Baking program provides students with the basic skills for the entry levels of commercial baking in a professional environment. Instruction focuses on a maximum hands-on experience as well as theory and safety. Students will be involved in all aspects of baking preparation including breads, sweet breads, assorted pastries, cakes and cake decorating.

PROGRAM GOALS

- Demonstrate core concepts in baking theory and methodology through hands-on development and sensory analysis of American and European style baking and pastry products.
- Illustrate classical and contemporary pastry and confectionery techniques.
- Demonstrate the planning, development, execution and evaluation of products, menus and creative presentation.
- Research and distinguish effective restaurant and patisserie operations including sustainable facilities, equipment and evolving technologies.
- Employ leadership and supervision concepts with an emphasis on communication, cultural diversity and positive guest relations.
- Analyze and integrate problem-solving techniques in a professional, ethical and profitable business environment.

PROGRAM STATISTICS

FALL 2016

- Previous Enrollment: Fall 2013 – 10 AAS, 17 Cert, Spring 2014 – 9 AAS, 21 Cert,

Fall 2014 – 9 AAS, 18 Cert, Spring 2015 – 9 AAS, 13 Cert, Fall 2015 – 6 AAS, 6 Cert, Spring 2016 – 9 AAS, 6 Cert

- Current enrollment: 6 AAS and 9 Certificate
- Full time equivalency: 13.5
- Number of faculty: 1
- Student to faculty ratio: 15:1
- Persistence rate: 83%
- Retention rate: 65%
- Job Placement rate: NOT AVAILABLE

NO PREVIOUS PROGRAM REVIEW WAS CONDUCTED

RESULTS OF PROGRAM ASSESSMENT

No assessment results were available.

RECOMMENDATIONS

- Improve the computer support and equipment for the baking program.
- Include instructors in budgeting and assessment processes.
- Offer classes so that skilled students are not in the same class as students who have no prior knowledge.
- Continue to improve equipment and expand space.
- Provide business skills courses for students.
- Continue the wide range of catering opportunities for students.
- Continue to participate in regional and national competitions.

OCCUPATIONAL OUTLOOK

- A pastry chef job is among the artists of the culinary world.
- These days, carrying on this long-standing culinary tradition may mean loading dough into the oven at 3:00 a.m. for the day's first fresh bread, adding dollops of whipped cream to 100 slices of devil's food cake for an evening gala, or adding the final flourish of frosting to a wedding cake before it's wheeled out to the happy
- Wherever high quality pastries are served, pastry chefs can be found working behind the scenes.
- Pastry chefs need to be able to bake, which involves attention to detail, knowledge of ingredients and a fair amount of patience. They also need to have artistic ability and creativity to produce pastries and desserts that look as good as they taste.
- Small changes in a recipe can make a big difference. So pastry chefs need to pay attention to what they're doing, even while performing routine tasks.
- Some pastry chefs may supply other businesses with baked goods, while others may serve their confections at their own neighborhood shops. No matter who their customers are, pastry chefs need people skills in order to establish thriving businesses.
- A pastry chef job often requires long hours on your feet. Many require early morning hours—starting around 3 or 4 a.m. There may also be some lifting involved. Pastry chef careers are often very physically demanding, requiring chefs to spend hours on their feet. The schedule can also be intense. Many chefs work 55 hours a week or more. Depending on the establishment and type of food being served, a pastry chef may keep

extremely early, late or long hours due to the intensive nature of prep work most pastries and breads take.

- The majority of pastry chef jobs are concentrated in the food service and hospitality-related industries. The top employers for pastry chefs are as follows:
- Restaurants, Bakeries, Hotels, Food service, Baking and Pastry, Hotel and Hospitality Management
- Average national salaries: Assistant Pastry Chef: \$39,740,
- Pastry Chef: \$52,283, Executive Pastry Chef: \$60,729
- Accredited baking schools have received recognition for meeting national or regional standards for the quality of their education from the following national agency:
- The American Culinary Federation (ACF)

**PROFESSIONAL COOKING CERTIFICATE AND
CULINARY ARTS AAS
SCHOOL OF APPLIED TECHNOLOGY
PROGRAM REVIEW - FALL 2016**

The Professional Cooking and Culinary Arts program at NTU are examples of best practices in the field. It provides students with a low cost, close to home program with options of Certificate, AAS and a Bachelors program in the final stages of approval, instructors who are experienced in the industry and many opportunities for catering, internships and competitions.

This program provides measurable and marketable skills that utilizes knowledge that dates back to the beginning of man, uses each of the STEM subjects within its trade to be truly successful and enters students into a multi-billion-dollar industry.

Through the hands on experiences of this program students are provide vital and essential services to many enterprises, organizations and institutions on the Navajo Nation. Through the competitions students display their skills in national and global arenas and garner many awards and recognition for their achievements.

MISSION

Professional Cooking dedicated to inspiring our students to reach their full potential through an education that emphasizes technique and professionalism. We will accomplish this in a passionate, disciplined environment that focuses on the four Dine philosophies of education: Nitsahakees (critical thinking), Nahat'a (preparation), Iina (collaboration, doing), Sihasin (reflection, accomplishments).

PROGRAM GOALS

- Demonstrate the preparation of fine restaurant foods using all of the cooking procedures available in commercial kitchens.

- Demonstrate the ability to prepare appetizers, soups, sauces and entrees.
- Demonstrate an ability to fabricate and portion meats, poultry and seafood.
- Acquire skill in using small and large commercial kitchen equipment.
- Practice appropriate sanitation, personal hygiene and safety procedures.
- Demonstrate the ability to convert, weight and measure quantity recipes accurately.
- Plan nutritionally balanced menus with appropriate consistency, texture, flavor and color variations.
- Demonstrate the ability to organize an accurate system for cost and portion control.
- Keep accurate records of purchases and inventory and learn the principles of food purchasing.
- Supervise and lead employees.
- Demonstrate various types of table service.
- Acquire skill in the ability to carry out dining room responsibilities.
- Develop employability skills appropriate for supervisory or management personnel.
- Become cognizant of the opportunities for employment in the culinary field.
- Complete general requirements for an Associate of Applied Arts and Sciences (AAS) degree

PROGRAM STATISTICS

FALL 2016

- Previous Enrollment: Fall 2013 – 105 AAS, 21 Cert, Spring 2014 -86 AAS, 25 Cert, Fall 2014 – 107 AAS, 18-Cert, Spring 2015 – 88 AAS, 11-Cert, Fall 2015 – 82 AAS, 7-Cert, Spring 2016 – 67 AAS, 5-Cert
- Current Enrollment: 75 in AAS and 6 in Certificate
- Full-time equivalent: 69.5
- Number of faculty: 2
- Student to faculty ratio: 81:2
- Persistence Rate: 77%
- Retention Rate: 45%
- Job Placement rate: There has been no assistance in job placement. The faculty secured summer employment for 9 students.

NO PREVIOUS PROGRAM REVIEW WAS CONDUCTED

RESULTS OF PROGRAM ASSESSMENT

- The program is constantly improving through assessment. Fall 2016 whole pig fabrication and sausage production was reintroduced.
- Expectations consistently increase with each semester.

RECOMMENDATIONS

- Complete the final stages of the Bachelor's program.
- Increase the number of faculty in the Professional Cooking program
- Provide campus wide recognition of achievements of faculty and students in the Culinary Arts program

- Provide job placement and career counseling for students
- Continue to provide catering opportunities
- Continue to secure summer employment opportunities
- Increase budget to reflect number of students and additional degrees
- Continue to provide opportunity for students to participate in competitions

OCCUPATIONAL OUTLOOK

- Cooks work in restaurants, schools, hospitals, private households, and other places where food is prepared and served. They often work early mornings, late evenings, holidays, and weekends.
- Most cooks learn their skills through on-the-job training and related work experience. Although no formal education is required, some restaurant cooks and private household cooks attend culinary school.
- The median hourly wage for cooks was \$10.44 in May 2015.
- The median annual wage is \$24,000.
- Nationwide employment of all types of cooks is projected to grow 4 percent from 2014 to 2024, slower than the average for all occupations. Job opportunities will result from the combination of employment growth and the need to replace workers who leave the occupation.
- The health care field will provide the most increase in demand with figures for outpatient, ambulatory and residential care centers seeing increases of 48 to 60%.
- There is high supply of people looking for those jobs in both the state and the county. The number of culinary professionals is growing in New Mexico. In New Mexico, 1,020 more culinary professionals were working in 2010, than there were in 2006. Thus, in New Mexico, this field has grown by 7% in four years. This is faster than the trend for culinary professionals around the US. Nationally, the number of culinary professionals has shrunk by 1% between 2006 and 2010.
- According to the BLS, the number of jobs for chefs and head cooks is expected to rise 9 percent through 2024, and food prep workers should see 6 percent job growth in the same time frame. National long-term projections of employment growth may not reflect local and/or short-term economic or job conditions, and do not guarantee actual job growth.
- The restaurant industry will continue to fuel U.S. employment in the year ahead as the nation's second largest private sector employer.
- The restaurant industry added jobs at a strong 3.5 percent rate in 2014.
- In 2015, restaurant sales reached a record \$709 billion, the sixth consecutive year of real growth in restaurant sales.
- Food services and drinking places, the larger subsector in this industry, is projected to grow from 61,650 jobs to 77,880 or 26.3 percent.
- In New Mexico the food services and drinking places industry is projected to grow from 61,650 jobs to 77,880 or 26.3 percent.
- The amount earned by culinary professionals is increasing in New Mexico. The mean salary for culinary professionals in 2006 was \$20,428 per year. And in 2010 the mean salary was \$23,536 per year.
- Thus, there was a 13% growth in culinary professionals' salaries. Within the field of culinary, there is a huge variation in pay, with the highest paid culinary professionals earning 97% more money than those in the bottom 10% of the pay bracket in New

Mexico.

- As the number of culinary professionals is increasing in New Mexico, the number of students graduating from the 7 accredited culinary schools in New Mexico state is also increasing. In 2006 there were 126 culinary graduates from culinary courses in New Mexico and in 2010 there were 150 graduates.
- Thus there was a 19% percent increase in the number of culinary school degree or certificate graduates in New Mexico. 71% of these graduates received an undergraduate certificate in culinary.

TEXTILE AND WEAVING CERTIFICATE SCHOOL OF DINE STUDIES AND LAW STUDIES PROGRAM REVIEW – FALL 2016

This program aligns with NTU's mission and strategic plan. It provides a grounding in Navajo traditions and training in a respected art.

To assist the students in the Textile and Weaving Certificate program it is important to learn how to study the market for their crafts or artwork to increase their understanding of what potential customers might want. Many craft and fine artists sell their work on the Internet, so developing an online presence is an important part of their art sales.

Artists often must interact with many people, including coworkers, gallery owners, and the public so communication skills are another important part of a Textile and Weaving program.

MISSION

The students will be taught how to weave Navajo rugs and also understand the oral tradition and history of Navajo weaving.

PROGRAM GOALS

- The students will be trained to become instructors.
- The students will improve on their artistic ability
- The students will pursue selling their products
- Students will be capable of starting their own businesses

PROGRAM STATISTICS

FALL 2016

Current enrollment: 4

Full time equivalency: N/A

Number of faculty: 1

Student to faculty ratio: 4:1

Persistence rate: 33%

Retention rate: 0%

Job Placement rate: NOT AVAILABLE

NO PREVIOUS PROGRAM REVIEW WAS CONDUCTED

RESULTS OF PROGRAM ASSESSMENT

NOT AVAILABLE

RECOMMENDATIONS

- Examine the requirement of a \$100 lab fee.
- Make arrangements for students who do not have access to a car or to supplies.
- Include instructors in budget and assessment process.
- Make sure that students' schedules don't conflict with other required courses.
- Examine the possibility of evening classes.
- Schedule changes should be made with prior notice to instructors and students.
- Continue to have instructional space which allows for access to outdoor facilities.
- Encourage student participation in Business and IT classes

OCCUPATIONAL OUTLOOK

- Job opportunities in Textile and Weaving include: instructor positions, self-employment, textile manager and fabric designer.
- Craft and fine artists held about 50,300 jobs in 2014. About half were self-employed.
- Most fine artists earn a bachelor's or master's degree in fine arts in order to improve their skills and job prospects. A formal educational credential is typically not needed for craft artists. Craft and fine artists improve their skills through practice and repetition.
- The median annual wage for craft and fine artists was \$45,080 in May 2015.
- Employment of craft and fine artists is projected to grow 2 percent from 2014 to 2024, slower than the average for all occupations. Employment growth of artists depends in large part on the overall state of the economy, because people usually make art purchases when they can afford to spend the money.
- In McKinley County in November 2016 there were 99 jobs advertised for craft and fine artists. The number of candidates seeking work in those fields was 6.
- Competition for jobs as craft and fine artists is expected to be strong because there are more qualified candidates than available jobs. Competition is likely to grow among independent artists given that many of them sell their work in the same online marketplaces. In addition, competition among artists for the privilege of having their work shown in galleries is expected to remain intense.
- Because the demand for artwork depends on consumers having extra income to spend, many of these artists will find that their income changes as does the overall economy. Only the most successful craft and fine artists receive major commissions for their work.
- Despite the competition, studios, galleries, and individual clients are always on the lookout for artists who display outstanding talent, creativity, and style. Talented individuals who have developed a mastery of artistic techniques and marketing skills are likely to have the best job prospects.