PRC Summary Report for AY24

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OVERVIEW

In the 2023-2024 academic year, nine certificate and degree programs were assigned Program Review, all of which were successfully completed. Self-Study Teams summarized their reviews in presentations convened by the Program Review Committee (PRC) and offered next steps for program improvements. The PRC synthesized the data and, on that basis, devised recommendations for individual programs, the process of Program Review, the PRC, and the University as a whole. Next steps include action planning by the Self-Study Teams and consideration of suggested University-wide process improvements by academic administration.

RECOMMENDATIONS FROM PRIOR PROGRAM REVIEW CYCLES

In previous PR cycles, the PRC developed high priority recommendations based on analyses of individual academic programs and the PR process. The following recommendations remain to be addressed:

Address accountability issues on PR teams. In previous summary reports, the PRC discussed PR-related accountability challenges that confront the University. In past cycles, there were full-time faculty members who should have participated in PR, but did not show up at all for orientation, SST deliberations, or the PR hearings in February. Although each team under review participated in AY24, there still existed problems with attendance at the orientation, timely response to requests from the committee, division of work among team members, and meeting to the committee's deadlines. *The committee recommends providing teams with an information packet at the beginning of the cycle; the packet should include a checklist of expectations and due dates, sample report, and sample presentation*.

Improve SST action planning. The need to clarify and assist with this assignment for each SST remains. In AY24, the PR Chairs met individually with program teams at their request to offer guidance with action planning. *In future cycles, the PRC recommends providing written guidance to teams on how to formulate an action plan*.

Improve Career Services academic support. The University continues to have an opportunity to strengthen the capacity to provide data to program teams about program graduates. This could involve Career Services and the use of data from the National Student Clearinghouse (NSC). *The committee recommends that NTU build the capacity to access and use data from the NSC*.

Revise department chair job descriptions. New evaluation systems for faculty were designed and approved by the Board of Regents and adopted in AY23. However, job descriptions and remuneration systems for department chairs remain to be addressed. These advances represent important, strategic opportunities for improving the University as a whole. Thus, *the committee*

recommends that NTU examine the Chair job descriptions, identify gaps, and make adjustments in pay or course load to accommodate the Chairs' work demands.

Improve PR by connecting enrollment and retention data to cost data. Limited progress was made in AY22 and AY23 regarding this recommendation. In AY24, some budget information was made available to each SST, which was a significant improvement over previous Program Review cycles. *There remains the need to establish a program efficacy metric.*

Improve academic budgeting processes. NTU's Business Office continues to work on these improvements. Communication between the PRC and Business Office has improved in recent years with the participation of Business Office personnel in the PRC. *Still, recommendations regarding organizing academic costs centers, and using Appendix 2 of the Program Review Guide for identifying program-level cost centers remain.*

Support fully-online delivery of courses in programs approved by HLC for online instruction. Programs that have been approved for fully-online course delivery, for instance Business Administration, are expected to deliver courses in both online and face-to-face formats. That creates a heavy teaching workload that is often solved by hiring adjuncts. For online students who are required to attend a face-to-face class, it can create a burden of time and money spent traveling long distances to school. *For programs that are fully-online, the PRC recommends offering hybrid courses via Zoom or Blackboard Collaborate in place of face-to-face courses.*

Implement a process for applying program review findings. The purpose of Program Review is to promote the systematic review and evaluation of academic programs at NTU. The ultimate aim is to improve those programs, distribute resources as needed, modify or close under-performing programs, and balance resources when considering support for new or existing programs. The analyses are intended to strengthen student learning, faculty productivity, and enrollment and graduation rates in the service of the University's mission and strategic goals. The University has important opportunities to improve Program Review:

- Define a process for implementing Program Review recommendations
- Analyze program review findings
- Consider how those findings could shape strategic and annual planning
- Reallocate resources where they are most needed
- Address imbalances of high costs and low performance
- Address existing needs and opportunities before adding new programs
- Implement a transparent process for designing new programs.

PROGRAM REVIEW COMMITTEE

Continuing PRC members from AY23 include the following:

- Dianna Dekelaita-Mullet (Committee co-chair)
- Jennifer Wheeler (Committee co-chair)
- Sheena Begay (Institutional Research)
- Henry Fowler (Faculty)
- Tilda Harrison-Woody (Faculty)
- Sharon Nelson (Faculty)
- Anita Roastingear (Faculty)
- Chris Storer (Faculty)
- Brenda Tom (Human Resources)
- Anusuya Vellingiri (Faculty)
- Shawna Begay (Career Services)

New members in AY24 are as follows:

- Arup Dey (Faculty)
- Lorencita Billiman (Faculty)
- Marien Tall (Finance)
- Prince Boahene (Student Learning Coordinator)

PRC ACCOMPLISHMENTS

The PRC updated the annual Program Review Guide. It establishes an updated five-year cycle of Program Reviews. The committee used the same Program Review template established in AY18 and revised and updated annually since then. Administrative data were prefilled as follows:

- Student Data: by Institutional Research
- Faculty: by Human Resources
- Costs: by Finance Office

The University's Career Services office has limited data on job placement for the programs under review. For this reason, Career Services data are absent from the AY24 reports. Some programs had tracked their students' job placements and were able to provide job placement data.

The committee posted Program Review templates on Google Drive to facilitate authorship by multiple interests, maintained a PRC website, and held an Orientation session for Self-Study Team (SST) members in October, 2023. Orientation was attended by instructors from seven of the nine teams that were assigned Program Reviews. One-on-one assistance took place in Fall 2023 and Spring 2024 for Program Reviewers who requested help.

In previous summary reports, the PRC recognized that it had opportunities to improve committee members' attendance and participation in team functions. Toward this end, the PRC co-chairs kept track of members' attendance at regular committee meetings and participation in high profile events, such as Orientation in fall semester and Presentations in spring semester. Those data, when completed for AY24, will establish baseline numbers for gauging progress in subsequent program review cycles. Preliminary data are available here.

In AY22 and AY23, the PRC awarded certificates and a small cash award to the top three program teams. The AY23 committee established a scoring rubric and continued with the awards in AY24.

PROGRAM REVIEW RESULTS

- Nine Program Reviews were assigned in Fall 2023, following NTU's Program Review Cycle as spelled out in Appendix 2 of the Program Review Guide for 2023-2024. All were completed (see the *Program Review Results* section for more information).
- Three of four types of administrative data were completed, as explained above.
- In February 2024, eight Program Review teams participated in presentations and follow-up Q&A sessions via Zoom. All faculty members associated with the eight programs were actively involved in the presentations, with the exception of the Industrial Maintenance & Operations program team, which was exempted because the program is being retired.
- A scorecard was collected for all nine reviews (see Table 1 below). Checkmarks represent aspects of the Program Review that were completed, and X represents missing data.

TABLE 1: *Aspects of Program Reviews Completed in AY24*

Program Review Scorecard for 2023-2024

Navajo Technical University

PROGRAM	Hist	Curric	Student Data	Prog Assess	Strength Chall	Faculty	Recog	Cost	Action Plan	Pres
	SST	SST	IR	SST	SST	HR	SST	Bus	SST	SST
Building Information Modeling	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Chemical Engineering	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Construction Technology	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Energy Systems	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Engineering Technology	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Environmental Engineering	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Industrial Maintenance & Operations	✔	✔	✔	✔	✔	✔	✔	✔	✔	X
Management Info Systems	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Mechanical Engineering	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔

SST = Self Study Team
IR = Institutional Research
HR = Human Resources
BUS = Business Office

SELF-STUDY TEAM SELF-ASSESSMENTS

Self-Study Team	Self-Assessment*
Building Information Modeling (AAS) - Anusuya Vellingiri	2.67
Chemical Engineering (AAS) - Dr. Gholam R. Ehteshami	3.00
Construction Technology (Cert & AAS) - Tom Bebo & Jones Lee	2.56
Energy Systems (AAS) - Darrick Lee	2.00
Engineering Technology (AAS) - Dr. Mahbubar Rahman	2.78
Environmental Engineering (BS) - Dr. Olanrewaju Johnson & Dr. Juanita Francis	2.22
Industrial Maintenance & Operations (Cert) - Dr. Monsuru Ramoni & Dr. Arup Dey	1.56
Management Information Systems (MS) - Dr. Frances Ijeoma	2.22
Mechanical Engineering (BS) - Dr. Tarique Khan	2.67
SELF-ASSESSMENT AVERAGE	2.41

* Scale: 1=emerging, 2=developing, 3=proficient

TABLE 2: *Program Review Self-Assessments*

In addition to producing Program Review reports, each Self-Study Team was tasked with conducting a self-assessment which included a report rubric asking team members to rate their report in terms of 1) Curriculum, 2) Program Assessments and Improvements, 3) Strengths and Challenges, 4) and Action Plan. The final averages are posted in Table 2 above.

SELF-STUDY TEAM PRESENTATIONS AND PROGRAM-SPECIFIC FEEDBACK

The following notes come from PRC members' reflections on Self-Study Teams' presentations:

Building Information Technology: Anusuya Vellingiri

Main Points
- The program began in 2013.
- The program's goal is to provide flexible knowledge in rural architecture, management, technical skills, sustainable products, estimation, and laser scanning for the Navajo Nation.
- The program provides hands-on training and classroom teaching.
- Students will be able to design a project, survey, draw building models in 2D and 3D.
- The advisor has specific direct measures for Program Assessment, and has been collecting/reporting assessment data on schedule.
- There are 5 students majoring in the program.

Presentation
- Delivered a Powerpoint presentation.

Strengths
- Small/one-on-one instruction
- Strong curriculum.
- Emphasis on industry-standard software and technologies
- Women empowerment - 4 of 5 students are female.

Program Achievements
- Solar decathlon design challenge
- Isleta elementary school laser scanning
- Gazebo at NTU
- Laser scanning at several locations throughout Navajo Nation

Challenges
- Limited access to software and tech infrastructure - no common server to store data, and it has been lost in computer upgrades.
- Limited industry connections which affects internship opportunities
- Students have to travel from Chinle to Crownpoint to take courses

Q&A

Question
- You lost data in 2022, did you tell IT to archive*?*

Response
- Yes, she has lost data many times and she asks for archives, but IT did not help. Advisor saves her own data now. There is no data before 2020.

Question
- Is there software you need? Are you using Solid Works?

Response
- No to Solid Works. Uses Autodesk Rivet.

Question
- It's outside of your project–student housing, family housing. Can your students work with the Construction Trades program to build homes? We have the knowledge, students, programs, and resources to do that. Can we do that for ourselves/campus?

Response
- The students are already designing low cost low energy building projects and work with Electrical and Energy Systems. Students will be able to help in that area.

Question
- Can we encourage our students to continue their education here at NTU in another STEM area, instead of sending them to UNM, ASU, etc.?

Response
- B.S. in Civil Engineering - upcoming - will be an opportunity for students to stay at NTU.

Question
- Could we do a big conference to showcase our programs? Similar to the Creative Writing conference at Twin Arrows.

Chemical Engineering: Dr. Gholam R. Ehteshami

Main Points
- The program began in 2015.
- The program's mission is to help students to enter into professional chemical engineering technician practice where they contribute within their community.

Presentation
- Delivered a Powerpoint presentation.

Strengths
- Addresses local job market needs
- Permanent budget allocation for instructor and equipment
- Curriculum focuses on practical skills for job market readiness

Challenges
- Low enrollment.
- Limited lab and classroom space and allocation of equipment in the old chemistry lab.
- Lack of effective use of assessment results to inform program improvements/"Closing the loop"

Some opportunities for improvements
- Modifying frequency and schedule of course offerings
- Adding/removing a course from curriculum
- Academic models need to be shared throughout faculty
- Revise course content/assignments
- Increase classroom space
- Add lab
- Hire or reassign faculty
- Revise course prerequisites
- Revise criteria for admission to the program
- Better recruiting strategy
- Few students have heard of chemical engineering tech program and its benefits

How do we intend to improve/grow?
- Active recruitment plan aimed at high school students
- Variety of learning methods and assessments to meet students' learning preferences
- Create an atmosphere for PD, finding funding sources, working with other faculty to develop the program
- Meeting/advising future students, and engage other faculty and students in the learning process; other faculty can teach in the program
- ABET had some questions/critique and we are in the process of responding to those
- Need more advertising
- Extend the program from 2 to 4 years

Q&A
 Question
- How many students are enrolled?

 Response
- Enrollment dropped during COVID and has not recovered. There were two students in the Fall semester.

Question
- Do you have access to your budget? This is important to know when planning improvements. Is your budget just for this program, or is it tied to other programs?

Response
- Not at the moment. Budget is just for this program. The actual budget is under $20,000, and the additional money came from other sources

General Comment
- Key thing here is recruitment. We need to be more proactive. Go to high school and speak about job opportunities, rather than just handing out flyers

Construction Technology: Tom Bebo & Jones Lee
Main Points
- The program offers specialized instruction in modern techniques of the construction practice
- The program prepares graduates to work with architects, engineers, contractors, and others concerned with construction
- There are 32 students majoring in the program.
- Courses are all offered face-to-face.
- The advisor has specific direct measures for Program Assessment, and has been collecting/reporting assessment data on schedule.
- There are 5 students majoring in the program.

Presentation
- Delivered a Powerpoint presentation.

Strengths
- Affordable tuition
- Small classes.
- Face-to-face and hands-on instruction
- Women empowerment - 4 of 5 students are female.

Program Achievements
- Renovated police department in Chinle and the elections office–all hands on work done by students
- Graduates work on and off the reservation
- Built Gazebo at NTU
- 4 graduates since 2022

Challenges
- Limited funding to support students.
- Low enrollment
- No heat/cooling in classroom and shop
- Dust collection system not working

- Limited lab/storage space
- Trade building needed asap. Health and Safety issues in the construction trailer (No restroom)

Remarks

- Need help getting started with local high schools near Chinle, and need an Internship program. There is always talk about it, but it never comes to be.
- Since Freda left the Dual Credit program, the Construction program has not had good contact with the high schools. In the past, they did outreach, skills fest, etc. Freda and Daniel Vandever were involved in setting up those events. The program no longer has that support, and cannot manage it alone. They teach F2F full time, do their own custodial work–they are completely busy.
- Assessment results – this is one of the first programs that shared their assessment results. There is always room for continuous improvement.
- Thank you to the Construction program. It helps carry NTU's enrollment - they consistently have high enrollment. Jones has been here 22 years, a long time to commit to an organization. That commitment empowers students to be sovereign and find a job immediately after graduation. Ahe'hee.
- Thank you to the program for the good work they're doing. The Construction students have good attendance even though English is not their area of interest.

Energy Systems: Darrick Lee
  Main Points
- The program started in 2002.
- The program's focus is on renewable energy and workforce development.
- Core curriculum - electrical math, wind/solar power, photovoltaic theory, and systems control.
- Focus on solar technology due to industry demand.
- Students also learn wind turbine technology.
- Hands-on instruction in installation procedures for practical skill development
- Emphasis on fostering critical thinking skills for informed decision-making

Presentation
- Delivered a Powerpoint presentation.

Strengths
- Collaboration with various non-profits for student workforce development.
- Acquisition of new photovoltaic simulation equipment for AC and DC simulated loads.
- Representation in the IEEE community and involvement with state and government representatives in renewable energy efforts.

- Emphasis on research in PV and Wind Power theory and design.

Program Achievements
- Student projects on campus include electric bikes that can be checked out by students, charging stations on campus, wind turbines, solar panels
- Students travel to other sites to give demonstrations and presentations on how the systems work
- Program works with industry partners, e.g. ASU and STAR School in Flagstaff
- Two students are going to Sandia National Labs for an internship this summer.
- Students hold jobs in the industry

Challenges
- Low enrollment.
- Students exhibit difficulty retaining information between courses, particularly when transitioning across various programs.

Q&A

Question
- Do you have a specific job placement rating? How many have been placed, and where are they located? How many students transfer into continuing education?

Response
- Two students went right to work after graduation. Some students stay in touch after graduation and let me know what they are doing.

Question
- Is your program under the Engineering department?

Response
- No, it's under Applied Sciences currently, and I'm working on moving the program to Engineering. At other universities, Energy Systems falls under Engineering.

Question
- Should there be a course to prepare students to work in Hydrogen energy production?

Response
- We have a grant with ASU to extract hydrogen from water, and I will be part of the team that provides photovoltaic systems.

Question
- How is enrollment?

Response
- It's currently low (5 declared majors). I promote my program at Chapter houses and schools. Getting students to commit is challenging.

Engineering Technology: Dr. Mahbubar Rahman
Main Points
- The program started in 2017.
- The program is ABET (Accreditation Board for Engineering and Technology) accredited.
- Core curriculum - electrical math, wind/solar power, photovoltaic theory, and systems control.
- Focus on solar technology due to industry demand.
- Students also learn wind turbine technology.
- Hands-on instruction in installation procedures for practical skill development
- Emphasis on fostering critical thinking skills for informed decision-making

Presentation
- Presented from his self-study report.

Strengths
- Ensures students receive a technically sound and culturally relevant education.
- Prepares students to serve as bridges between modern engineering practices and indigenous knowledge systems.
- Flexibility in learning.
- Inclusivity and diversity.
- Excellent educational experience
- Continuous improvement

Program Achievements

- The program collaborates with major industry leaders like Boeing and Morf3D to create high-tech, high-paying job opportunities in the market

Challenges
- The program is male dominated.
- Student retention.
- Career placement
- Technological advancement

Q&A
   Question
   - Planned workshops for women in engineering - are other engineering programs collaborating on those workshops? What is the target for graduates of the program? What Navajo Nation department can they work for?

Response
- ● The program offers basic background, but students must move on to a Bachelor's degree to be employable by Navajo Nation departments.

Question
- ● Is there a way that the program can lead to a 4 year program that we already have at NTU?

Response
- ● Engineering Technology is the only program of its kind at NTU. It is based on application of advanced technologies, not theories. It is a 2 year program, and it would be possible to expand to a 4 year program related to other programs (e.g. Advanced Manufacturing Engineering Technology).

Environmental Engineering: Dr. Olanrewaju Johnson & Dr. Juanita Francis

Main Points
- ● The program started in 2021 with one course (Hazardous Waste Management).
- ● The program's purpose is to mitigate environmental hazards and health consequences in the Navajo Nation.
- ● Some concentrations include Environmental Law, Hydrogeology, and Dine Studies courses.
- ● Student learning outcomes are modeled after ABEt outcomes and rubrics.
- ● There are four(4) students in the program, with no graduates yet.

Presentation
- ● Delivered a Powerpoint presentation.

Strengths
- ● Modern analytical equipment.
- ● Hands-on experiential education/research.
- ● Low student/faculty ratio.
- ● Emphasis on research in PV and Wind Power theory and design.

Challenges
- ● Low enrollment.
- ● Students are not adequately prepared for college work.

Plans to overcome challenges
- ● Set up recruitment activities
- ● Establish a pipeline with high schools, colleges, and trade programs.
- ● Mentor students one-on-one in class

Q&A

Question
- ● There are 4 students in the program. What will you do to ensure that the 4 students stay in the program?

Response
- Mentoring students one on one
- Exposing students to research opportunities and programs (Los Alamos, Brookhaven, etc.)
- Help students recognize that they are capable of succeeding as engineers
- We have better opportunities here than large schools, where only graduate students have access to hands-on lab work.

Question
- Have you, since inception, collected any program assessment data? Are you offering any assessed classes this Spring semester?

Response
- Classes to be assessed have not been taught yet, or, the students did not complete the course.
- Yes, we are offering 3 courses, but only one student enrolled. The course is taught by a consulting company (Tetra Tech), and requires a minimum of 5 students to make the course.

Question
- Do you have access to your budget information?

Response
- Getting budget information is very difficult. The Business Office does not respond. The program has been trying for 6 months.

Remark
- You have a MOD that serves as a lab. Please ask the Marketing department to make a film of students working on a project. The film will be used for marketing purposes. Please let the world know! The fact that undergraduate students have lab access is remarkable, and usually only possible in graduate school.

Industrial Maintenance & Operations: Dr. Monsuru Ramoni & Dr. Arup Dey
Main Points
- The program started in 2011.
- The program focuses on vibration analysis, electrical troubleshooting, drive system repair and hydraulic, pneumatic system troubleshooting and repair.
- Adjunct instructors from the APS Power Plant have been teaching industrial maintenance and operations I and II.
- There have been 13 students enrolled in the program since Fall 2020.
- One student graduated in Fall 2021.

Presentation
- Exempted from hearing because the program is being retired.

Strengths
- Cultural integration.
- Community focus.
- Responsiveness to change.
- Educational excellence.
- Economic empowerment.
- Industry involvement.

Challenges
- The program is male dominated.
- Student retention.
- Meeting and maintaining accreditation standards is a problem.

Management Information Systems: Dr. Frances C. Ijeoma

Main Points
- The program started in Fall 2021 with three (3) students.
- There are 11 students enrolled in the program this academic year. Enrollment is becoming consistent from year to year. There have been 4 graduates since the program started 3 years ago.
- Curriculum follows the MSIS 2016 curriculum guidelines/Global Competency Model - provides real world skills and foundations.
- The program's mission is to equip graduates with knowledge and skills, and dispositions for transforming information.
- The program is fully online.

Presentation
- Delivered a Powerpoint presentation.

Strengths
- There are also hands-on, interactive assignments, and simulations.
- Students have access to instructor via Zoom
- One student completed a paid internship.
- There are student projects through PeopleGroove, a PBS learning system where students design, develop a solution to a real problem.

Challenges
- Limited or no funding.
- Internet access is an issue for remote students.
- Difficulty in finding internship opportunities.
- Low enrollment
- Lack of access to necessary software for students (e.g. MS Project)

Plans to overcome challenges
- Locate and apply for funding

- Advise students not to register for more classes than they can handle..
- Accept late assignments
- Recruit international students - but they might not qualify for financial aid.

Q&A

Question
- Thank you for your presentation, and congratulations on your first cohort graduating. Where are they working?
- Internet access should be a requirement for an online program. Is that a stated requirement? There is no excuse for late assignments, if it's documented.
- How are you recruiting for Navajo students to join the program?

Response
- 3 graduates work for the Navajo Nation. I don't know where the 4th works.
- The students live in an area with limited internet access. They claim to have it, then say that they don't have it after enrolling.
- Recruiting on NN: There is a presentation that they deliver, and use social media for marketing. Wafa goes to other schools to recruit. More recruiting could be done on campus to recruit Bachelor's graduates.

Question
- What did you do to help the first cohort all graduate?
- What is your workload like?

Response
- Biweekly Zoom meeting, communicate via email at least once per week to let students know where they stand and what needs to be done to catch up. Gave Blackboard training to help students who were unfamiliar. Grade timely and provide detailed feedback. That cohort were mature adults and already had work experience.
- No, if I could have an adjunct, it would help a great deal.

Question
- Are you planning to revise the curriculum to include a thesis option? There's funding from NSF to fund student graduate research, and that would allow you access to that funding.

Response
- Yes, there should be a thesis option. One issue is that students need more than one semester to complete their thesis. Some changes would need to be made to accommodate the thesis. Internships would need to be removed, and students choose between capstone or thesis..

- You mentioned going to local areas to recruit. Are there incentives that you hand out at events, or brochures?

Response
- Yes, and I need incentives to offer, but what is needed are grants, funding, etc. to encourage them to leave their schools and come to NTU. NTU has nothing to offer students to encourage them to attend NTU

Mechanical Engineering: Dr. Tarique Khan

Main Points
- The program started in 2021 with three students.
- The program has experienced steady growth and diversification, but enrollment is still low (14 majors).
- The program is committed to continuous improvement and inclusion.

Presentation
- Delivered a Powerpoint presentation.

Strengths
- Cultural integration.
- Community focus
- Flexibility in learning.
- Economic empowerment.

Challenges
- There is no financial data from the Business Office.
- The program is male dominated.
- Difficulty in finding internship opportunities.
- Low enrollment
- Lack of access to necessary software for students (e.g. MS Project)
- The need to improve assessment methods to better measure learning outcomes and address issues of diversity and inclusivity in the curriculum.

Action plan
- Expand faculty by appointing more full-time faculty members
- Establish a fleet mechanics lab.
- Conduct meetings with the Navajo Advisory Board to review curriculum.
- Write grants to get more funding for the department.
- Continue outreach to local schools to promote the program.
- Develop a women in engineering outreach program.
- Work with HR on scholarships for women in STEM.
- Work with Alumni Association on fundraising.
- Work with facilities/Robert Chase on lab spaces.

- Recruit indigenous engineers as faculty.
- Incorporate indigenous engineers in workshops.

Q&A

Question
- What is the projected date of first graduate?

Response
- Fall 2025 - 2 students will graduate

Question
- Do you work with Candace Craig to develop a dual credit pipeline?

Response
- No, not yet, but will do so.

Question
- Integrating cultural knowledge into the curriculum - that's something important to integrate into all subjects. Are there any examples of how that's being done?

Response
- Students identify Navajo Nation problems that can be solved with engineering knowledge. As of now, we are working with two Mechanical Engineering students on a project to solve agricultural issues. What are the needs of farmers on Navajo? In capstone, students are encouraged to choose problems that are relevant to Navajo Nation, then provide support for students to find solutions.

Question
- You mentioned going to local areas to recruit. Are there incentives that you hand out at events, or brochures?

Response
- Yes, and I need incentives to offer, but what is needed are grants, funding, etc. to encourage them to leave their schools and come to NTU. NTU has nothing to offer students to encourage them to attend NTU.

SST SURVEY RESULTS

After the AY24 hearings were held, self-study team members were surveyed about Program Review. They were asked questions such as, *What went well? What needs improvement?* Responses were limited; 6 of the 12 AY24 self-study team members completed the survey. In the Additional Comments section, one respondent suggested that NTU provide job placement data. One respondent expressed concern about the PRC committee members' lack of review of the self-study report prior to the hearings; the respondent stated, "the committee had my self-study report, and it seemed that no one looked at the information before I presented." Another respondent suggested that each program be assessed by an expert team consisting of one or two

members. Finally, the suggestion was made to improve data provided by the Finance Office; the respondent indicated the need for more communication and transparency from the Finance Office. Results of the survey are presented in Appendix A.

PROGRAM-SPECIFIC OPPORTUNITIES FOR IMPROVEMENT

Address technology and software needs in the Building Information Modeling program. The Building Information Modeling program faces challenges with limited access to current software. Furthermore, the program lacks sufficient technological infrastructure; for instance, the program has had ongoing issues with data management. The program data is not stored in a secure, reliable location, and has been lost (and unable to be recovered) during computer hardware updates. Finally, the program struggles with maintenance and renewal of licensing for their specialized software. Those issues must be addressed before the program begins its planned expansion to include a Bachelor of Science in Civil Engineering.

Improve enrollment and student preparedness in the Environmental Engineering program. An ongoing challenge has been low enrollment. There are four declared majors. The committee recommends increased recruitment activities, establishing a pipeline with high schools, community colleges, and trade programs. In terms of other challenges, students entering the program are not adequately prepared to handle the demands of college-level science, math, and engineering courses. Given the small enrollment, the program's instructors should mentor students one-on-one both in class and during research activities. Such mentoring will help develop students' college-level skills in math, science, and engineering.

Improve enrollment in the Chemical Engineering program. The Chemical Engineering program had two declared majors in Fall 2022 and Fall 2023. Suggestions for improving enrollment include celebration of students' achievements, better coordination with NTU's Recruiting Office, and a marketing campaign to make the community more aware of the Chemical Engineering program.

Provide funding and internship placements for Management Information Systems students. The Master's in MIS program enrollment has grown consistently since its inception, with a current enrollment of 11 students. The committee suggests seeking funding or budget expansion to subsidize the students' educational costs; the program advisor can begin by requesting additional funding in the upcoming budget process and hearings. Additionally, offering financial support to graduate students has the potential to increase enrollment by allowing students to attend school without working full time. The committee also recommends forming agreements with internship sites, particularly sites that may later offer job opportunities to NTU's graduates.

Form an advisory board for the Mechanical Engineering program. An advisory board of industry experts will help address several needs in the Mechanical Engineering program, including curriculum relevance, mentoring, community relations, career placement, and marketing/recruitment. Furthermore, there exists a notable disparity in the number of male and female students. To address this, the committee recommends implementing strategies to bolster female student enrollment. These can include but are not limited to developing outreach programs aimed at women in high schools to encourage interest in STEM fields, establishing scholarships and mentorship programs specifically for female students, and inviting female engineers as guest speakers and role models.

Expand the Engineering Technology budget to allow program improvements. Currently the budget for the Engineering Technology program is less than $1,000. That amount is insufficient to account for marketing, recruitment, and the purchase of equipment and upgrades. The committee strongly recommends that the program advisor request additional funding in the next budget cycle.

Provide an OSHA certification course and build a hands-on training center for the Energy Systems program. Although students in Energy Systems have been introduced to OSHA regulations and standards for construction, they need a certification course to prepare them to apply for positions after graduation. Furthermore, the committee recommends building a hands-on training center where students can practice solar and wind installation applications while working along-side with non-profit industry partners.

Provide facilities and additional faculty for the Construction Technology program. Construction Technology has consistently high enrollment (currently, there are 32 declared majors). However, the program lacks adequate facilities to serve the needs of its students. For instance, the Chinle courses are housed in a modular building that has no restroom facilities. The program's Chinle instructor teaches courses in two programs (Construction and Welding), making it difficult to offer all the courses needed by students to graduate on time. At the Crownpoint campus, there is no heat or cooling in either the classroom or shop, there is limited work and storage space, and the dust collection system has been inoperable since 2007. The committee recommends (1) adding an additional Construction faculty member at the Chinle site, (2) upgrading the classroom and laboratory space at the Chinle site, (3) upgrading or replacing the heat and cooling systems at the Crownpoint site, (4) repairing or replacing the dust collection system at the Crownpoint site, and (5) building additional storage space at the Crownpoint site (the committee recommends involving students in this effort).

UNIVERSITY-WIDE OPPORTUNITIES FOR IMPROVEMENT

Cultural integration in science, math, and engineering programs. Navajos have been using science for all aspects of life for countless generations. STEM education infused with Navajo culture and language recognizes and integrates the intellectual strengths of Navajo students within their academic learning experience. Integrating cultural knowledge into the STEM curriculum based upon Navajo experiences, i.e., oral history, stories from elders, and cultural understanding of the universe validates the students' culture while providing a connection and foundation for the western scientific process. An approach that reflects a holistic learning process that involves exploration and experimentation will help Navajo students develop their self-identity as scientists without sacrificing their cultural identity.

Improve the hiring and evaluation processes for adjunct instructors. Hiring adjuncts is a challenge. Further, it is not always an appropriate solution. First, the adjunct hiring process is long and complicated and requires constant monitoring by a department chair to ensure the hiring request does not fall between the cracks. Second, there is little oversight of either hiring or performance of adjuncts; for instance, the hiring process does not require an interview. Third, adjuncts do not always solve staffing shortages; for example, some programs must offer Independent Study courses to individual students in order to meet the students' graduation plans, and IS courses are offered on a volunteer basis with no pay. The PRC suggests (1) simplifying and documenting the adjunct hiring process, (2) require that new adjuncts be interviewed by program staff and the department chair, and (3) document a procedure for communicating with and evaluating adjuncts.

Offer more program-specific funding for students. Scholarships are effective in recruiting students and maintaining enrollment. The PRC suggests that programs seek external funding for scholarships and also include scholarship funding in their annual budget requests.

Improve student advisement. Advisement issues continue from previous years. Jenzabar, the University's data management system, is not available to all faculty advisors. Additionally, coordination is poor across multiple department and campus locations as no single person oversees the entire advising picture. Challenges include the following: (1) recommended course sequences are not established for all programs, (2) some checklists are out of date, (3) faculty do not have access to all advisees, (4) and faculty do not follow a set schedule for meeting regularly with advisees. Opportunities include establishing a university-wide team across sites and programs to design process improvements, research best practices, and designing and implementing a comprehensive plan for moving forward.

Promote the reporting of academic assessment data. Although the programs reported their assessment data in their self-study reports, they failed to share that information in their presentations. In the next cycle, the PRC will provide a presentation template to guide the programs' presentations. Furthermore, the current self-study template offers little guidance for

reporting assessment; the committee will work towards simplifying the template, perhaps by focusing more on program improvements that resulted from assessments.

Furthermore, a number of programs do not participate in program assessment at all, despite receiving constant reminders, assistance, and incentives. That is a critical issue, because Program Reviews are required to include program assessment results. The PRC recommends that there should be a binary outcome for Program Reviews: programs either "pass" or "fail" the process. If a program's assessment results are missing, then the program fails review and is required to revise, resubmit, and present again the next year.

Implement a process for tracking job placement. It is imperative to explore effective solutions for addressing the current gap in job placement tracking (*NTU's strategic goal 1.8*). One suggestion is to implement a centralized tracking system managed by the Career Services office. This system could serve as a repository for all program-specific job placement data, streamlining information collection, and analysis. Alternatively, the Program Review Committee may need to require that each program takes responsibility for tracking its own job placements.

Detailed information from the Finance department about program budgets. Getting comprehensive information about program budgets from the Finance department is a challenge. The Program Review Committee receives overall budget data from the Finance department for each program, however, we need to know how much of the budget comes from the General Fund, and how much comes from external sources (*NTU's strategic goals 2.1 & 2.3*). Furthermore, we need to know the number of students enrolled in program elective courses who are not majors in that program, as this directly offsets some of the operational costs. Despite continuous requests for this information over the years, it remains to be addressed.

Implement a process for applying program review findings. The purpose of Program Review is to promote the systematic review and evaluation of academic programs at NTU. The ultimate aim is to improve those programs, distribute resources as needed, modify or close under-performing programs, and balance resources when considering support for new or existing programs. The analyses are intended to strengthen student learning, faculty productivity, and enrollment and graduation rates in the service of the University's mission and strategic goals. The University has important opportunities to improve Program Review:

- Define a process for implementing Program Review recommendations
- Analyze program review findings
- Consider how those findings could shape strategic and annual planning
- Reallocate resources where they are most needed
- Address imbalances of high costs and low performance
- Address existing needs and opportunities before adding new programs
- Implement a transparent process for designing new programs.

APPENDIX A: Program Review Survey Results

Prior to your Program Review presentation, how much of the information that you needed did you get?
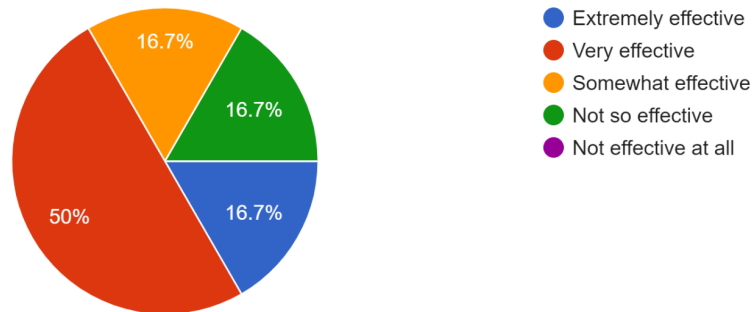
6 responses

- 🔵 All of the information
- 🔴 Most of the information
- 🟠 Some information
- 🟢 A little of the information
- 🟣 None of the information
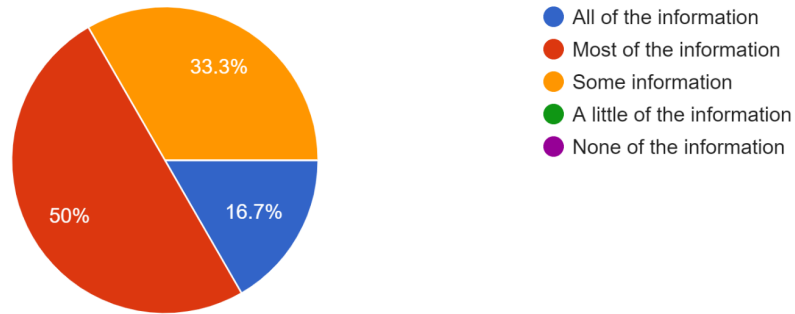
Was the presentation event too long, too short, or about right?

6 responses

- 🔵 Much too long
- 🔴 Too long
- 🟠 About right
- 🟢 Too short
- 🟣 Much too short

Did your Self-Study report reflect your program effectively?

6 responses

- Extremely effective
- Very effective
- Somewhat effective
- Not so effective
- Not effective at all

Which areas of the Self-Study report were the most and least helpful for helping you improve your program?