

Introduction

Southwestern Indian Polytechnic Institute (SIPI) is an accredited, federally-operated college funded through the U.S. Bureau of Indian Affairs (BIA). The College is governed by a national tribally appointed Board of Regents, established to provide technical and higher education at the associate degree and certificate levels for members of federally recognized tribes. The enrollment derives from over 100 different Indian tribes among approximately 900 students. In 1993 the SIPI Board of Regents directed the College to begin offering transfer degrees with an emphasis on science and technology. .

Advanced Technical Education Certificate & Degree Programs

- Electronics Technologies
- Manufacturing Technology
- Engineering
- Geospatial Information Technologies
- Natural Resources Management/Environmental Science/Crops & Soil Science/Agribusiness
- Network Management
- Engineering A.S. Degree Program

SIPI's Strengths

- Tuition-exempt, also providing students with room, board and textbooks.
- Student population (~650 to 900/trimester) allowing coherent, intimate student/teacher ratio.
- Current student body is 100% American Indian/Alaskan Native representing over 100 tribes from across the country.
- Long-standing partnerships/agreements with local secondary schools, regional higher educational institutions (University of New Mexico, New Mexico Highlands University, New Mexico State University, and Northern Arizona University), Sandia National Labs, and other science centers greatly enhance sustainability for learning and research.
- 6 associate degree programs in the sciences
- 10 full-time science faculty (5 have PhDs), also utilizing UNM adjunct instructors, and visiting scientists
- Research internship opportunities for SIPI students.
- 72,540 sq. ft. science and technology building (12 research/teaching labs, 10 classrooms, 14 faculty office 2 conference rooms, 2 distance learning classrooms and a 500 seat auditorium).

SIPI Engineering Programs:

SIPI is a leader in Engineering and Engineering Technology education among Tribal Colleges. SIPI Advanced Technology, Engineering, Engineering Technology programs are fully accredited and articulated with all the New Mexico four –year universities: UNM, NMSU, and NMTECH. SIPI offers the first two years of a four-year engineering program. The graduates from the program are accepted as juniors to Mechanical, Civil, Electrical, and Computer Engineering programs. SIPI also offers an “Enrichment Year” program to prepare high school graduates in math, science, communication, and computer skills to be able to enter as SIPI freshman engineering students. The majority of our courses will transfer to any 4-year engineering program in the country. Also, when you check our website, you will find that our labs are state-of-the-art. We can say without exaggeration that they are the best educational labs in the state of New Mexico and among the best in the Southwest.

The NASA EpScore “Science Payload” project was successfully completed by engineering students project team A2. The students worked on all day past Friday as well as Saturday morning. The “Science Payload” Rocket was launched on April 25th, from Space Port USA, New Mexico.

SIPI Engineering and Engineering Technology Programs, in collaboration with SIPI NSF TCUP II and NSF ATE ASEET Programs, NASA Johnson Space Center, and AIHEC will offer its Third TCU Engineering/Robotics Summer Institute on June 15-July 25, 2009. This year theme is Web-based Remote Control of Mobile Robotic Systems.

There will be three research and development Groups and a total of seven teams for summer 2009. The graduate students from UNM, NMSU, NMTECH, and students and faculty from Tribal Colleges (SIPI, SKC, Dine, OLC, and LBHC) will apply to join one of the three research groups, based on their interest. The work will fulfill the partial requirements for the ENGR 280 and ENGR 105 SIPI summer courses. This year Summer Institute is scheduled for six weeks of intensive workshops, courses, and research and development experience activities at SIPI and one week of visit to NASA JSC.

To promote the advancement of Native American and Hispanic students in Information Technology (IT) and Science, Technology, Engineering and Math (STEM) careers Southwestern Indian Polytechnic Institute (SIPI) is developing a year-round robotics centered IT immersion program that will provide students a stimulating learning environment to explore their curiosity and creativity in IT and stem fields. To expand the impact of the program, and the number of students reached, SIPI will partner with three regional high schools with predominantly Native American student population. Utilizing SIPI's experience in program development these Tribal Colleges (TCU's) will develop and implement similar programs from their campus to reach out to underrepresented students in their local communities.

The Southwestern Indian Polytechnic Institute's (SIPI) renewable energy program seeks to establish renewable energy technology hardware on and around the campus, which will supplement and create the educational resources to teach renewable energy courses at its campus. Under the subject agreement, SIPI will design, install, operate, and maintain photovoltaic, wind and solar hot water systems to be located at the SIPI campus and educate and train Native American students in renewable energy technology.

Dr. Nader Vadiee will represent SIPI in the areas of engineering and engineering technology student outreach and recruitment, education, and research. He served SIPI as educational program coordinator from August 1994 to July 1998. He has rejoined SIPI as engineering faculty and engineering programs coordinator since August 2004. He has more than thirty years of experience in both academia and industry and has conducted research, solicited funds, designed, supervised, and offered courses in electrical engineering and computer engineering. Dr. Vadiee served as project director of the highly successful undergraduate research program, NASA PURSUE, NASA MURED PAIR Program, at the University of New Mexico. Funded for 4 years at \$500k /year, approximately 125 undergraduate and graduate research and educational projects were sponsored. SIPI was a partner school under NASA PURSUE program. Dr. Nader Vadiee, SIPI engineering programs coordinator had an appointment with the UNM department of electrical and computer engineering as a research associate professor for 1998 – 2005 . Currently, his graduate students from UNM are setting up a tele-presence UNM-SIPI web-based link for a remote-controlled systems and control laboratory.