The Vision of CIAN’s education programs is for CIAN university & pre-college students to become innovative, globally competitive scientists and engineers who excel in their areas of expertise. CIAN has specifically focused goals on Native American education in both pre-college and university education.

CIAN University Education Program & Native American Education Focus

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UNIVERSITY EDUCATION

Attributes of the Engineer of 2020:
• Strong Analytical Skills
• Practical Ingenuity, Innovation, & Creativity
• Communication
• Business, management, and leadership
• Ethical Standards & Professionalism
• Dynamism, Agility, Resilience, & Flexibility
• Life Long Learners

Goals:
• Sense of community with CIAN students
• Increase Industry-Student relations (internships & networking)
• Undergraduate research opportunities
• CIAN Curriculum (Photon Communication Engineering)
• STEM Pipeline leading pre-college students from their studies into STEM higher education & careers

EMPOWERING THE ENGINEER OF 2020

Through engagement in CIAN’s industry, collaboration, outreach, and professional development education activities, CIAN students will develop Engineer of 2020 attributes that will prepare them to be innovative engineers ready for success in next-generation global work environments.

Industry Activities
University Education
Industry
Pre-College Education
Outreach Activities
Outreach
Collaboration Activities
Collaboration
Professional Development
Professional Development

CURRICULUM

6 CIAN Alumni-involved Start-up Companies
34% CIAN Alumni in Industry employed by CIAN IAB Companies

RESEARCH

Companies Employing CIAN Alumni

CIAN’S University Education Strategic Plan

CIAN focuses much of its efforts on opportunities for diverse populations, especially Native American students. These opportunities include programs such as CIAN’s Integrated Optics for Undergraduate Native Americans (IOU-NA) Research Experience for Undergraduates (REU); Research in Optics for K-14 Educators & Teachers (ROKET) Research Experience for Teachers (RET); and Expect Academic Success in STEM (EASIS) Summer Camp. Other programs across CIAN continue to focus on providing STEM education opportunities to underrepresented minorities and females.

FOCUSED ON NATIVE AMERICAN EDUCATION

CIAN offers ROKET, a 6-week summer program designed for K-14 teachers of Native American students who are interested in bringing an expanded knowledge of STEM to their classrooms.

EXPECT ACADEMIC SUCCESS IN STEM

Expect Academic Success in STEM (EASIS) Summer Camp to help Native American middle & high school students master optical sciences concepts, pursue higher education and engineering professions, and improve classroom STEM curriculum.

REU FOR NATIVE AMERICANS
Integrated Optics for Undergraduate Native Americans

• 95% of REU participants said that the research internship met their expectations
• 95% said the experience was Very Good or Excellent
• 100% agreed that the experience has greatly improved their grade application

Results
• One parent application submitted by participant and her faculty mentor
• Four planned undergraduate REU publications
• Three conference presentations (AISES and Dark Skies Conference)

INNOVATIVE CURRICULUM
Optics Adventures Comic
• Digital & Online
• Available to all educators and students
• Interactive (videos & animations)
• Optics & STEM Concepts
• Aligned with AZ standards & NextGen Standards

OPTICALS

SICloud: Silicon Photonics Calculator (UCLA)

Silicon Photonics “The 100X Opportunity” (Forbes Magazine)

FUTURE OF OPTICALS

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Testimonials

“The REU program inspired me to implement an after school STEM program for 5th, 6th, and 7th graders at Santa Rosa Day School in The Silence O’odham Nation in Tohono, AZ. This is the first program of its kind in my school...”

“Over the years quite a few [Navajo Community College] students (1-3 per semester) have been able to apply and accepted into CIAN and other REU opportunities at the UA...”