

FIRST Impact Award - Team 316

2025 - Team 316
Team Number
316
Team Nickname
LUNATECS
Team Location
Carneys Point, NJ - USA
Describe the impact of the <i>FIRST</i> program on team participants within the last 3 years. Think about percentages of those graduating high school, attending college, in STEM careers, leadership skills, and serving as mentors/sponsors in <i>FIRST</i> programs.
89% of our graduates are pursuing Univ STEM Degrees, including at Havard 65% of our mentors are FIRST Alumni, and 91% are STEM professionals We value minority recruitment (21% female team members and 31% female mentors) Strong partnerships with Salem Community College (SCC) offer our students 18 free college credits, increasing their college-preparedness Industrial internships (11 at Spectrum Design, Widener, Comcast, SEAP) and Drone Certification Program ('24) play a key role in our success
Describe your community along with its unique opportunities and circumstances. Think about your geographic region, diversity of town/school, language barriers, socioeconomic barriers, and cultural expectations.
We are from Salem, the most rural county in NJ, with limited STEM resources Our community also includes individuals nationwide who use adaptive devices Recognizing our County's lack of school and college support, we run a Gear-up college-preparedness program for minority students (262), host several STEM outreach events (39), and recruit FIRST students and mentors (271) Our FIRST-driven skills have led us to develop sustainable adaptive solutions for disability advocacy group - Easter Seals
Describe the team's methods, with emphasis on the past 3 years, for spreading the <i>FIRST</i> Mission in ways that are effective, scalable, sustainable, and creative.
Our team spreads the FIRST message through annual summer camps (ROBOQuest, STEMQuest, and Coding) that engage 161 students, with surveys confirming participants' desire to join FIRST. Our off-season FTC event, Duel on Delaware, has a remarkable 30% annual growth Our scalable 6-week GEAR-UP program has offered STEM lessons to over 262 students, empowering them with college readiness Our Robo Demos have engaged 5195 students and inspired them to join FIRST, including 30% of our mentored teams
Describe your team's goals and the progress you have made towards them to fulfill <i>FIRST's</i> Vision.

Our goal is to create a lasting impact (FIRST's Mission) in our community through sustainable solutions Our partnership with SCC and the new NJ STEM Pathways allows STEM awareness and FIRST engagement opportunities in our rural SJ community Our Adaptive Device Program designed the prosthetic swim fins for spinal cord-injured adults and kids. They can now experience freedom of movement underwater. Active engagement of the users has fostered a co-inventor mindset, yielding sustainable solutions

What impact has your team seen from your efforts described in the above question? How does your team measure impact?

We support three FIRST Districts - SJ, FTC, and FMA Our outreach efforts have engaged over 10,000 people, yielding 35 FIRST mentee teams 600 disabled individuals have learned to swim through our prosthetic swim fins 262 low-income minority students have increased their college-preparedness through our Gear-up program 89% of our team members are pursuing a STEM degree Team316 has over 1000 STEM Outreach hours 65 FTC teams (1450 members) have attended our unique Duel on Delaware off-season event

Please provide specific examples of how your team and team members act as role models within the *FIRST* community with emphasis on the past 3 years. How do you share these best practices with other teams?

As FIRST ambassadors, we showcase our Robot at Clearview and Atlantic City High Schools and Penns Grove High/Middle School in Salem County, attracting 1000, 1765, and 687 attendees, and started 35 FIRST teams We hosted the most popular "Effective FRC prototyping" session during '24 Comcast's FRC workshop, engaging 290 students/mentors Our newly renovated shop, funded by a \$60k industry-collaborative grant secured by a team member, serves as a role model for other teams to reform their space

Describe your team's initiatives to Assist, Mentor, and/or Start other *FIRST* teams with emphasis on activities within the past 3 years.

We started 7 Explore, 20 Challenge, and 8 FTC teams in our rural community We conduct monthly FastTrack FLL sessions that offer programming advice and feedback on innovation projects to our FLL Challenge mentees We provide orientation sessions for our new coaches and assist with recruitment Our team mentors also actively participate as FTAs, and our students as FTMA's for the NJ FTC teams We host an annual FTC kick-off event Our FTC teams can access our shop as we support them in prototyping

What other initiatives have you created, grown, sustained, or participated in (*FIRST* or otherwise) to help inspire young people to be science and technology leaders and innovators? What outcomes have you seen from your efforts in the past 3 years?

We engage 5 southern New Jersey counties as we hold our annual STEAMFest (9th in '24) event that engages 512 attendees in STEM activities and our robot demos We host a college fair that has rapidly grown from 7 to 12 colleges, encouraging continued education and college recruitment opportunities We host NJ STEM Month events engaging HS/MS students and offer tours of our shop Widener University highlighted our team members' research accomplishments and is committed to hiring more FIRST interns

Describe the partnerships and relationships that you've created with other organizations (teams, sponsors, educational institutions, government, philanthropic entities, etc.) and what you have accomplished together, with emphasis on the past 3 years.
Spectrum Design, LLC, our industry sponsor, offered 4 robotics and machining internships and 1 full-time job to alums. They also let us set up a new practice field in their warehouse, enabling other FRC teams (#6921) to practice with us Through Comcast sponsorship, we have secured 15 more possible internships Our academic Widener University partnership allows summer STEM research opportunities Easter Seals partnership will allow our adaptive device, swim fins, to reach 600 swimmers annually
Describe your team's efforts in the past 3 years to promote equity, diversity, and inclusion within your team, <i>FIRST</i>, and your communities.
In our community, we organize free coding camps for Salem County VoTech School's 'Girls Who Code' group Our team is a Mensurational Equity (m.e.) FIRST ambassador and provides free menstrual products at all our events. This inspired SCC to set up a permanent lactation room in their lobby We are committed to raising awareness for neurodivergent FIRST members, including 32% of our current team, by distributing FIRST-approved flyers, providing sensory bags and quiet rooms at all our events
Explain how you ensure your team and the initiatives you have created will be sustainable.
Partnership with South Jersey Robotics (our non-profit entity) allows us to secure space, grants, and administrative support for our outreach/student recruitment events Mutually beneficial partnership with SCC by supporting their Gear Up program offers a secured location for FLL, FTC teams mentorship, and Team316 run FLL events Post-season engagements of students/mentors through FLL Recognition Night recognize their achievements outside FIRST formal events and excites them for the next season
Highlight one area in which your team needs to improve and describe the steps actively being taken to make those improvements.
Our rural area poses issues with student recruitment and securing sponsorship from large local companies We look forward to recruiting more under-represented members by increasing our MS and HS STEM outreach events We also actively engage non-local companies to sponsor the team and attend our STEAMFest and other outreach events, including FRC Duel on Delaware, FLL Qualifier, Adaptive Device Program, Recognition Night, and Registration Day
Briefly describe other matters of interest to the <i>FIRST</i> Judges, including items that may not fit into the above topics. The judges are interested in learning about aspects of your team that may be unique, particularly noteworthy, or had a large impact.
We recognize the growing importance of social media and digital platforms in STEM. We have developed a Drone & Aerial Robotics program that enables youths to become certified Remote Pilots through the Federal Aviation Administration. This initiative allowed us to capture stunning video footage of our annual 5K Robot Run & STEAMFest, showcasing all levels of FIRST programs. Our reputation has attracted two school districts who will be helping in Fall'25 to launch their FIRST robotics programs.
Judge Feedback

How can we influence the FIRST community to adopt our adaptive device and Drone/Aerial Certification programs?

An area the team has an opportunity to improve.

Something that really impressed the judges.

Essay

"Creating Lasting Impact Through Sustainable Solutions" has been Team316's community-centric and FIRST-aligned mission for 26 years. We are dedicated to achieving our mission through targeted programs: Outreach, Competitions, Engineering skills, Assistive/Adaptable devices, and New student/mentor recruitment (OCEAN). Our OCEAN programs have created waves of strong partnerships not only with the local schools/colleges in our South Jersey (SJ) community but also the disability groups nationwide. The invaluable contributions of each Team316 student have propelled the team toward achieving its mission while enhancing their own professional preparedness as they gain valuable engineering skills, earn 18 college credits, and secure competitive internships, positioning them for success as FIRST alumni. The spirit of giving back thrives, with 65% of our team mentors proudly being FIRST alumni. We take pride in being a small community team with a robust, sustainable plan and commitment to impact our community.

Outreach SJ community is the most rural NJ community with limited exposure to STEM. Team316 is committed to bridging this gap by bringing FIRST programs to schools, colleges, and communities. Each Team316 member's commitment to serve a minimum of 40 STEM outreach hours yearly helps accomplish the goal.

Since 2019, we've proudly supported GEAR-UP, a federal college-readiness program that equips middle and high students from economically disadvantaged areas, such as Penns Grove/Salem, with the skills needed for post-secondary success. Team316 hosts this STEM program for Salem Community College (SCC), making us 1 of only 8 NJ locations to offer this opportunity. Through Team316's developed lesson plans, 262 GEAR-UP participants have gained leadership, teamwork, and STEM skills in a safe, supportive environment.

TEAM316 also hosts various STEM outreach community events. Our annual STEAMFest includes a 5K Robot Run, 1-Mile Walk, STEAM activities, robot demos, and a growing college fair. Over the past 3 years, we've expanded the college fair from 7 to 12 participating institutions and engaged over 512 participants in the Robot Run. Our summer outreach includes several STEM-focused camps that have engaged over 161 students in 3 years. This summer, we're expanding our camps to collaborate with Salem County VoTech's 'Girls Who Code' to offer Java training. We are deeply committed to engaging minorities in FIRST, fostering an inclusive environment where everyone feels welcome and empowered to succeed.

Competition To support FIRST's mission of inspiring more young people to pursue careers in STEM, Team316 partnered with the SJ community as they formed their own Southern NJ FIRST District. We have since hosted the Explore and Challenge Qualifier supporting the mission of FIRST 'Coopertition,' engaging 82 teams in '23-25 years while fostering a fun yet challenging environment for participants. During these events, we have also showcased our robot and shop to highlight the transformative FIRST journey—from Explore to Challenge to FTC to FRC. In 2025, we extended our impact by supporting the

ArtSci Festival, PA, where 14 Explore teams joined the celebration of STEM and creativity.

Engineering Skills We embody FIRST's mission of inspiring the next generation of STEM professionals. Team316's long-standing partnership with SCC is a testament to this commitment. We are the only team that has negotiated a groundbreaking alliance with SCC, which offers 18 free college credits to not just Team316 but also Team365, featuring FIRST and FRC program descriptions directly in their syllabus.

Beyond the teamwork, the real-world experiences our students gain have opened remarkable doors to industry and academia. Multiple Team316 students have secured prestigious internships at NASA ('25), Comcast ('25), Spectrum Design ('21-'25), Fast Wave Networks ('24), and Widener Univ ('24) and gained experience in fields like quality control, machine operation, CAD design, IT/programming, and cutting-edge research. It's no surprise that 89% of Team316 alumni are currently pursuing undergraduate STEM degrees, with one on his way to Harvard.

Our commitment to professional preparedness extends to grant writing offering unique leadership and entrepreneurial opportunities. In '24, a Team316 student secured a \$60K industry-partnered grant, enabling us to upgrade our 25-yr-old machine shop with state-of-the-art laser cutters and CNC machines. These resources have transformed our capabilities—not only for building competitive robots and refining adaptive devices but also for STEM outreach and recruiting new students through shop tours during our events hosted at SCC.

Another significant milestone is the launch of our Drone & Aerial Robotics Program ('24). This NJ STEM Pathways-funded initiative enables team members to earn FAA Remote Pilot Certification and cutting-edge skills in the emerging aerial robotics STEM field.

Through innovative partnerships, advanced programs, and hands-on experiences, Team316 members are equipped to make an impactful contribution to the STEM workforce of tomorrow.

Adaptive Device and Accessible Programs Team316 takes immense pride in being one of the FIRST teams dedicated to empowering the disability community by creating opportunities for active participation in society through its innovative Adaptive Device Program. Using our engineering expertise and resources, we have designed a Swim Fin device that assists spinal cord injury survivors and grants them the freedom to experience zero-gravity movement underwater. Our donated Fins were used during an international dive in Honduras. Building on this success, we expanded our service community by creating a pediatric fin ('23). In '24, we partnered with Delaware Easter Seals, who are using our adult and pediatric fins at 'Camp Fairlee' (over 600 campers). They are also interested in our original volleyball launcher adaptive device. Our mission continues to focus on expanding the reach of our devices while embracing new need-based engineering challenges.

We are also steadfast in fostering equity and inclusion. We support female health initiatives at all our events and proudly serve as ambassadors for the Menstrual Equity movement to reduce stigma and anxiety. Recognizing our advocacy, in '23, SCC made a permanent Lactation Room available during our FIRST events.

In '24, we extended our diversity efforts by raising awareness and promoting the inclusion of neurodivergent children. By providing FIRST flyers, quiet spaces, and sensory bags at Team316-hosted events, we have created a welcoming and inclusive environment for all participants.

Through innovation, advocacy, and inclusivity, we remain committed to creating meaningful change and inspiring a brighter future for our communities.

New Student Recruitment and Mentorship Team316 is deeply committed to inspiring students and educators by showcasing the transformative benefits of joining the FIRST community. Over the past 3 years, Team316 has introduced FIRST outreach events in 5 South Jersey county schools that lack accessible STEM programs. Team316 Robot's demo at Clearview High School (1,000 attendees), Atlantic City High School (1,765 attendees), and Penns Grove High & Middle Schools (400 attendees) have led to 7 Explore, 20 FLL Challenge, and 8 FTC teams. Our efforts have fostered consistent annual growth, creating at least one new FLL Challenge, Explore, and FTC team annually in disadvantaged areas like Atlantic City, Salem, and Camden in NJ.

Team316 strives to ensure that new students thrive. Our FLL FastTrack sessions at SCC provide structured mentorship through technical and programming support, project guidance, and team-building activities. Over the past 3 years, we've mentored 35 teams through 12 sessions, impacting over 90 students. We have also extended financial support (\$17,262) to these teams. These efforts have led to measurable success, with 6 ('23-'25) teams advancing to the Southern NJ FLL Championship at Rowan University and 1 FLL team reaching the Houston Championship in '23.

While we focus on student recruitment, we also prioritize mentor recruitment and leadership development in underserved areas like Camden and Salem Counties. In '23, we launched a yearly Recognition Event to celebrate the efforts of FIRST students and their coaches. 2 coaches have been honored with the 'Blazing a Trail Award' for successfully introducing FIRST robotics programs into their school districts, which have led them to be STEM leaders and role-models.

In '25, Team316 took their mission to a new level by hosting the most popular session—'Prototyping for FRC'—at the Philadelphia Comcast FRC Workshop, attended by over 290 mentors and students. This initiative aimed to inspire both students and mentors to explore the endless possibilities of FRC programs.

Sustainability In '08, Team316 founded the nonprofit cooperative South Jersey Robotics (SJR) to serve as an external advisory board supporting the team's mission and sustainability. Comprised of student representatives and mentors, SJR plays a critical role in securing resources, such as space at SCC, driving STEM growth in our local community through FLL team management, helping in fundraising efforts (STEAMFest, raised >\$57K in 3 years), and securing grants (industry-grant for 60k) that ensure long-term financial sustainability.

Creating Strong Waves: Our Future For the past 26 years, Team316 has been at the forefront of transforming STEM education in South NJ. We continue to create lasting waves of impact by inspiring and nurturing future STEM leaders. We are also passionate about co-creating FIRST inventors within the disability community through our Adaptive device program. We are also committed to uncovering the untapped potential within each team member, empowering them to strengthen their community and drive innovation for a brighter future.;

