



MACILE is Spanish for “Mathematics, Science, Engineering, and Language.” MACILE is the education program of Complex Systems Optimization Lab (COSOLA). Its mission is to advance the introduction of engineering and technology education in K-12 classrooms and to motivate interests for science, mathematics, and engineering in less-advantaged communities in the Dominican Republic (DR). Its curricula and learning resources are designed to address the educational needs of the local population and to meet fundamental requirements for educating 21st century engineers and scientists.

MACILE was founded in 2007 and operates in the region of Itabo – San Gregorio de Nigua (Ytabo) in the Province of San Cristóbal, DR. Ytabo is one of the most disadvantaged areas in the country. The climate for learning in Ytabo is discouraging because of poverty, poor schools, low education rate, lack of spaces for children to expand their creativity and imagination, and ever growing social ills.

The median income of families with children is \$150/

month. The vast majority of Ytabo parents have completed only five years of primary education (5th grade). Almost 41% of children ages 5-17 are not enrolled in any school. Fewer than 60% of those enrolled in high school are expected to graduate. Moreover and tragically, those persevering will not be adequately prepared to pursue higher education or competitive employment.

Since 2007, COSOLA and our partners have been actively working in Ytabo to pilot several key components of MACILE, including a five-week STEM-focused Summer Academy for students in grade 6 to 12; merit-based Scholarship Program for pre-college and college students; Teacher Development Institute; and a Student Services component, which includes a small library, internship placement, and counseling. Having now completed the 6-year of pilot, we are now poised to launch the full MACILE program, by establishing The Center for Science, Technology, Engineering, and Mathematics Learning and Research (C-STEM).



Albania Y. Martínez – Attending INTEC with a COSOLA scholarship, majoring in Mechanical Engineering; attended the Instituto Politécnico Loyola with a MACILE scholarship; completed an Internship at Marítima



Abel Beltrán – Intern at Marítima Dominicana; attended the Instituto Politécnico Loyola with a MACILE scholarship; graduated October 2013; planning to major in Mechanical Engineering



Laydi Celeste Cuevas – Distinguished achievement recipient 2012 and 2013; recipient of MACILE scholarship; high school senior with a 3.95 GPA; wants to major in Mathematics

Results

- MACILE has 79 students ages 11-21; 76 % female
- 201 students and 218 teachers have participated in the MACILE Summer Academy and the Teacher Development Institute since 2007
- Participants in the MACILE Summer Academy place at the top 20% of their respective classes
- Since 2010, 15 MACILE students have had internships with some of the most prestigious Dominican companies
- About 53% students participate in the Summer Academy for 1 to 3 years and 47% participate for more than 3 years
- The 3-year participants have graduated from high school with very high marks or are on track to graduate at the top 10%
- Overall, 90% of our Summer Academy participants pursue higher education
- 21 pre-college and 5 college scholarships have been granted since 2008
- 31 MACILE students have graduated from high school since 2010; 28 are in college or will start in the Spring-Summer 2014; 13 are majoring in STEM disciplines.

COSOLA

COSOLA partners with academia, schools, business, and organizations to provide non-traditional and innovative education and research opportunities for talented young people from disadvantaged backgrounds and be able to nurture leaders in engineering, science, mathematics, and education for the 21st century. COSOLA was founded and granted IRS 501(c)(3) status in 2007.

C STEM



The Center for Science, Technology, Engineering, and Mathematics Learning and Research (C-STEM) is an integrated, multi-tiered educational and youth development program designed to advance learning in the disadvantaged region of Ytabo; transform the community's access to robust, language-infused STEM learning environments; and inspire talented young people, ages 9-22, to embrace a lifelong passion for technology, science and engineering.

C-STEM has NINE encompassing programs. These are four of them:

Engineering & Science Preparatory and Discovery Academy (ESPADA) —

Functioning as an academic preparatory high school, ESPADA will deliver low cost, top quality STEM and language (Spanish and English) education to talented 8th through 12th graders from disadvantaged backgrounds. ESPADA is designed to be a gateway to top national and international higher education institutions and competitive employment. As many as 200-250 students each year will attend from 7:30 am to 3:30 pm, Monday through Friday for 44 weeks.

MACILE Enrichment Academy —

This 42-week-academic-preparatory program will be offered for high school students that are entering 9th and 10th grade. Each academic year, participants will immerse themselves in various math and science and language courses.

MACILE Library and Media Center —

The current MACILE library, which has been in operation since 2012, maintains over 800 pieces of printed and digital

media, including computers the internet, a printer and other resources, all in a 300-square-foot space. C-STEM will significantly expand the library, dedicating 1,200 square feet of space to house the MACILE Library and Media Center. The library will directly serve 650-800 students and 250-400 teachers and educators each year. It will serve thousands of students through the school loan, which is designed to motivate reading by establishing loan-based classroom libraries throughout all of the schools in Ytabo.

MACILE Scholarship Program —

This merit-based program is offered to promising students, with interests in math, science and technology, and who have maintained good behavior at schools and in their communities. Our goal is to provide 150 four-year secondary scholarships over 10 years (a total of 600 scholarships) and 30 five-year college scholarships over a 5-year period (a total of 150 scholarships), starting in 2014.



DONATE

Please help us continue to change lives and prepare a better future for all

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