

# College of Engineering and Science

## Inventory of International Activities and Global Engagement

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## Agreements with Institutions Abroad

The following agreements are signed written contracts between the foreign institutions and Clemson University in support of an activity within the College of Engineering and Science. They are listed alphabetically by the institution's country. Please see the faculty contact if you have any questions regarding the extent or nature of the agreement.

Country	Institution Abroad	Agreement Type	CES Department	Field of Study	Faculty Contact
China	Beihang University	Articulation/Completion Agreement for incoming student recruitment	Electrical and Computer Engineering	Electrical and Computer Engineering	2013-2014
China	Tongji University	Activity Agreement: Dual Degree Program	Civil Engineering	Civil Engineering	J. Charng-Hsein
China	Jinan University	Memorandum of Understanding	Bioengineering	Bioengineering	M. LaBerge
China	Peking University	Memorandum of Understanding	Bioengineering	Bioengineering	M. LaBerge
China	Beihang University	Study Abroad	Non-Specified	Computer and Electrical Engineering	Office of Global Engagement
China	University of Science & Technology of China	Study Abroad	School of Computing	Computer Science (Masters)	H. Hill M. Smotherman
Czech Republic	Charles University	Memorandum of Understanding	Mathematical Sciences and Physics and Astronomy	Mathematical Sciences Physics	Office of Global Engagement
France	Institut National Polytechnic de Grenoble (INP)	Memorandum of Understanding	Mechanical Engineering	Non-Specified	G. Fadel J. Summers
France	Commissariat a l'Energie (CEA)	Memorandum of Understanding	Mechanical Engineering	Mechanical engineering	I. Haque
France	Universite de Nantes	Memorandum of Understanding	Civil Engineering	Civil engineering	Office of Global Engagement
France	Ecole Superieure des Technologies Industrielles Avancees (ESTIA)	Exchange	Non-Specified	Innovation- and Technology-Management Collaborative Design	G. Fadel
Germany	RWTH Aachen University	Memorandum of Understanding	Materials Science and Engineering	Materials Science	H. Hill

<b>Country</b>	<b>Institution Abroad</b>	<b>Agreement Type</b>	<b>CES Department</b>	<b>Field of Study</b>	<b>Faculty Contact</b>
Germany	University of Kaiserslautern	Exchange	Mathematical Sciences	Mathematical sciences	Office of Global Engagement
Germany	University of Bremen	Exchange	Mathematical Science	Mathematical sciences	T. Khan
India	Ansal Institute of Technology	Study Abroad	Non-Specified	Biosystems Engineering Computer Engineering Electrical Engineering Industrial Engineering	R. Collins
Italy	Elettra, Sincrotrone Trieste	Memorandum of Understanding	Physics and Astronomy	Physics and Astronomy	Office of Global Engagement
Italy	University of Salerno	Memorandum of Understanding	Non-Specified	Engineering	Office of Global Engagement
Japan	Hiroshima University-Grad School of Engr	Memorandum of Understanding	Mechanical Engineering	Mechanical Engineering Automotive Engineering	Office of Global Engagement
Japan	Waseda University Graduate Sch of Information, Production and Systems (IPS) Grad School of Science and Engineering	Memorandum of Understanding	Graduate school	Non-Specified	Office of Global Engagement
Japan	Toyota Technical Institute	Memorandum of Understanding	Mechanical Engineering	Mechanical Engineering Automotive Engineering	Office of Global Engagement
Korea	Inje University	Memorandum of Understanding	Industrial Engineering	Industrial Engineering	Office of Global Engagement
Multiple Countries	Global Engineering Education Exchange (GE3) Institute of International Education IIE	Exchange	Non-Specified	Non-Specified	Study Abroad
Romania	The University of Medicine and Pharmacy of Targu-Mures	Memorandum of Understanding	Bioengineering	Non-Specified	D. Simionescu
Russia	Moscow State Agroengineering University	Memorandum of Understanding	Non-Specified	Non-Specified	Office of Global Engagement

<b>Country</b>	<b>Institution Abroad</b>	<b>Agreement Type</b>	<b>CES Department</b>	<b>Field of Study</b>	<b>Faculty Contact</b>
Russia	Russian Academy of Sciences: Institute of Machines Science after AA Blagonravov	Memorandum of Understanding	Mathematical Sciences	Non-Specified	H. Hill
Spain	Fundacion Parque Cientifico de Madrid	Memorandum of Understanding	Bioengineering	Non-Specified	J. Desjardins
Switzerland	European Graduate School	Memorandum of Understanding	Graduate school	Non-Specified	Office of Global Engagement
Taiwan	Chung Yuan Christian University	Memorandum of Understanding	Chemical and Biomolecular Engineering	Chemical Engineering	D. Hirt
Taiwan	National Central University - Department of Civil Engineering	Memorandum of Understanding	Civil Engineering	Civil Engineering	H. Juang
Thailand	Asian Institute of Technology	Memorandum of Understanding	Non-Specified	Non-Specified	F. Alexis
Ukraine	Donetsk Institute for Physics & Engineering	Memorandum of Understanding	Physics and Astronomy	Physics and Technology	Office of Global Engagement
USA	Engineers Without Borders	Memorandum of Understanding	Non-Specified	Engineering majors	Office of Global Engagement
Dominica	Archbod Tropical Research Centre	Memorandum of Understanding	Environmental Engineering and Earth Science	Courses in ecology & conservation	J. Hains

## Study Abroad Programs

The following study abroad programs offer coursework specifically for academic programs in the College of Engineering and Science. They are arranged alphabetically by country.

Country	Program Name	Type	CES Department	Field of Study	Recent Activity	Faculty Contact
Austria	Chemical and Biomolecular Engineering	Summer Faculty-Led	Chemical and Biomolecular Engineering	Chemical Engineering	2013-2014	S. Husson
China	University of Science & Technology of China	Articulation	School of Computing	MS Computer Science	2013-2014	M. Smotherman
France	Grenoble Institute of Technology (Grenoble INP)	Exchange	Non-Specified	Non-Specified	-	Study Abroad
Germany	Sustainable Energy and the Environment	Summer Faculty-Led	Bioengineering	Bioengineering	2013-2014	H. Hill
Germany	University of Kaiserslautern	Exchange	Mathematical Sciences	Mathematical sciences	-	Study Abroad
Germany	University of Bremen	Exchange	Mathematical Sciences	Mathematical sciences	-	T. Khan
Germany	University of Applied Sciences: Esslingen	Exchange	Mechanical Engineering Automotive Engineering	Automotive Engineering	2013-2014	S. Biggers
Germany	Jena University of Applied Sciences	Exchange	Non-Specified	Science and Engineering	2013-2014	Study Abroad
India	Ansal Institute of Technology	Articulation	Non-Specified	Non-Specified	2013-2014	R. Collins
Ireland	Statistics and Irish Studies	Summer Faculty-Led	Mathematical Sciences	Statistics	2014-2015	H. Hill

<b>Country</b>	<b>Program Name</b>	<b>Type</b>	<b>CES Department</b>	<b>Field of Study</b>	<b>Recent Activity</b>	<b>Faculty Contact</b>
Japan	Bioengineering Research	Summer Faculty-Led	Bioengineering	Bioengineering	2013-2014	J. Nagatomi
Japan	Fukui University	Exchange	Non-Specified	Non-Specified	2013-2014	Study Abroad
Multiple Countries	Global Engineering Education Exchange (GE3) Institute of International Education IIE	Exchange	Non-Specified	Non-Specified	2013-2014	Study Abroad
Russia	Advanced Engineering and Russian Culture	Summer Faculty-Led	Mathematical Sciences	Mathematical sciences	2013-2014	I. Viktorova
Singapore	Bioengineering	Summer Faculty-Led	Bioengineering	Bioengineering	2013-2014	F. Alexis
Spain	International Bioethics and Bioengineering	Summer Faculty-Led	Bioengineering	Bioengineering	2013-2014	J. DesJardins
Thailand	Bioengineering	Summer Faculty-Led	Bioengineering	Bioengineering	2013-2014	F. Alexis

## Creative Inquiry Projects

The following CI Projects represent student research on international and global topics within the fields housed by the College of Engineering and Science. They are arranged alphabetically by CES Department.

<b>Name</b>	<b>Academic Years</b>	<b>CES Department</b>	<b>Description</b>	<b>Region/Country</b>	<b>Mentor</b>
Guiding Device Manufacture: Tanzania	2011- 2012	Bioengineering	Students design a temperature-sensor and heating blanket system for premature babies in areas where standard neonatal incubators are unavailable. Currently, premature babies in Tanzania are kept together in small rooms heated to approximately 40°C, where numerous problems with infections arise from the heat and humidity.	Tanzania	D. Dean J. DesJardins
Design and Synthesis of Advanced Nanomaterials to Address the Global Challenges of the 21st Century	2013- 2014	Chemical & Biomolecular Engineering	As we look into our future, we see many daunting challenges that face our global society. Some of these challenges include: providing renewable energy and clean water to satisfy the global demand, developing new diagnostics and therapeutics for the next generation of diseases that we face, and creating sustainable technologies that benefit society without being detrimental to the environment. Students research these challenges and determine what problems can be solved by designing advanced nanomaterials with specific functionalities.	Global	C. Kitchens
International Design Project with Engineers without Borders (EWB) in Central America	2012- 2013 2013- 2014	Environmental Engineering and Earth Science	La Pintada, Nicaragua Water Supply Students lead drinking water treatment and production designs for the CU-EWB official project in the village of La Pintada, Nicaragua. This project directly affects 298 people and indirectly affects 814 people.	Nicaragua	M. Schlautman C. Dracho

<b>Name</b>	<b>Academic Years</b>	<b>CES Department</b>	<b>Description</b>	<b>Region/Country</b>	<b>Mentor</b>
International Design Project with Engineers without Borders (EWB) in Gambia, Africa	2013-2014	Environmental Engineering and Earth Science	This project is in the assessment phase and will be an energy project in Gambia, Africa. This project directly affects 2500 people.	Gambia	M. Schlautman C. Drapcho
Material Handling, Logistics, and Distribution in 2025	2013-2014	Industrial Engineering	This project is part of a larger world-wide effort investigating future systems for moving material around the world and involves material handling, logistics, and distribution. The work that motivates this project is the Material Handling and Logistics U.S. Roadmap that was published in January 2014 by the Material Handling Industry. The Roadmap sought to identify trends in the world like the explosive growth of eCommerce, increasing global competition, and technology and to project the impact this will have on material handling, logistics, and distribution systems in 2025.	Global	W. Ferrell
Building Haiti's Future	2009-2014	Civil Engineering	Clemson Engineers for Developing Countries (CEDC) is an organization based around a series of Creative Inquiry projects working to find solutions to sanitation and engineering problems in Haiti. At the same time, students apply hands-on experience to their classroom knowledge. CEDC has grown from a handful of students in one project in 2009 to several hundred students spanning eight Creative Inquiry projects. The projects involve designing engineering solutions to problems encountered in Haiti, and then sending those solutions to Haiti along with student interns for implementation.	Haiti	J. Ogle



## Courses with Global Learning Content

**Undergraduate Courses** The following courses are those listed in the 2014-2015 Undergraduate Course Catalog with learning objectives or topics explicitly expressing a focus on international issues, globalization, or a specific location outside of the US. Courses are listed alphabetically by CES department.

Course ID	Title	Department	Region/Country
BIOE 4600	International Bioengineering Research Topics	Bioengineering	Global
BIOE 4610	International Study in Bioengineering	Bioengineering	Global
BIOE 4690	International Bioengineering Internship	Bioengineering	Global
GEOL 2700	Experiences in Sustainable Development: Water	Geology	Global
GEOL 3750	Bahamian Field Study	Geology/Environmental Engineering and Earth Sciences	Bahamas
GEOL H3750	Bahamian Field Study (Honors)	Geology/Environmental Engineering and Earth Sciences	Bahamas
IE 4440	International Perspectives in Industrial Management	Industrial Engineering	Global
IE 4540	Supply Chain Design and Control	Industrial Engineering	Global

**Graduate Courses** The following courses are those listed in the 2014-2015 Graduate Course Catalog with learning objectives or topics explicitly expressing a focus on international issues, globalization, or a specific location outside of the U.S. Courses are listed alphabetically by CES department.

<b>Course ID</b>	<b>Title</b>	<b>Department</b>	<b>Region/Country</b>
AUE 8260	On-Board Vehicle Diagnostics and Reliability	Automotive Engineering	Global
AUE 8330	Automotive Manufacturing Process Development, Methods and Tools	Automotive Engineering	Global
IE 6540	Supply Chain Design and Control	Industrial Engineering	Global
IE 8500	Introduction to Capital Projects Supply Chain	Industrial Engineering	Global
IE 8540	Fundamentals of Supply Chain Logistics	Industrial Engineering	Global
IE 8570	Industrial Safety and Risk Management	Industrial Engineering	Global

## Internationally Active Faculty

The following faculty members are those engaged in international or global activities either through international research collaboration, a global research-focus or through their teaching.

Last	First	CES Department	Research & Publications Topic	Creative or Study Abroad Inquiry	On-campus Instruction	Region/Country
Haque	Imtiaz	Automotive Engineering				France
Alexis	Frank	Bioengineering	Nanomedicine	Study Abroad to Singapore: Biogengineering Thailand: Bioengineering		SE Asia
Dean	Delphine	Bioengineering	Multiscale Modeling		Engineering World Health	Global
Desjardins	John	Bioengineering		Study Abroad to Spain: Bioengineering	International Bioethics	Global
Harman	Melinda	Bioengineering	Clinical outcomes of joint replacements in Germany; Analysis of explanted joint replacements from Germany & Italy; Analysis of joint replacement wear in the Netherlands & Canada			Germany, Italy, Netherlands, Canada
Karen	Burg	Bioengineering				Global
Martine	LaBerge	Bioengineering				China
Simionescu	Dan	Bioengineering	tissue regeneration and biocompatibility			Romania

Last	First	CES Department	Research & Publications Topic	Creative or Study Abroad Inquiry	On-campus Instruction	Region/Country
Campbell	Barbara	Biological Sciences	bacteria in biogeochemical cycling in Global habitats			Global
Hirt	Douglas	Chemical Engineering				Taiwan
Husson	Scott	Chemical Engineering		Study Abroad to Austria: Chemical Engineering		Austria
Kitchens	Christopher	Chemical Engineering		CI: Nanomaterials in Global Issues		Global
Marcus	Ken	Chemistry	editorial board for international journals			Global
Atamturktur	Sezer	Civil Engineering	Structural Health Monitoring of Nation's Cultural Heritage			Global
Juang	Charng-Hsein	Civil Engineering				China
Ogle	Jennifer	Civil Engineering		CEDC		Haiti
Kim	Sung-O	Electrical and Computer Engineering	Serves on many Korean committees			Korea
Singh	Rajendra	Electrical and Computer Engineering				Canada visitng professor
Venayagamoorthy	Kumar	Electrical and Computer Engineering				South Africa, Nigeria, Sweden
Anctil	Annick	Environmental Engineering and Earth Science	Educational Simulation Tool for Integrated Coastal Tourism Development in Developing Countries			Global
Drapcho	Caye	Environmental Engineering and Earth Science		CI: Engineers without borders		Global

Last	First	CES Department	Research & Publications Topic	Creative or Study Abroad Inquiry	On-campus Instruction	Region/Country
Karanfil	Tanju	Environmental Engineering and Earth Science				Global
Moysey	Stephen	Environmental Engineering and Earth Science	sustainable watershed development practices in rural India			India
Schlautmann	Mark	Environmental Engineering and Earth Science		CI: Engineers Without Borders		Global
Ferrell	William	Industrial Engineering				Global
Taaffe	Kevin	Industrial Engineering	Supply chain, logistics, transportation, and IT research with Michelin	Collaborating with ISIMA (French engineering school in Clermont-Ferrand) to offer student and faculty research exchanges, while working on renewable research projects with Michelin, whose North American and Worldwide headquarters are located in close proximity to both schools.		France
Bordia	Rajendra	Materials Science and Engineering	editor-in-chief of the Ceramics International Journal			Global

<b>Last</b>	<b>First</b>	<b>CES Department</b>	<b>Research &amp; Publications Topic</b>	<b>Creative or Study Abroad Inquiry</b>	<b>On-campus Instruction</b>	<b>Region/Country</b>
Ellison	Michael	Materials Science and Engineering	established a large and highly trans-disciplinary research program in Biomimetic Advanced Materials. This is a national and international research program: Dr. Ellison and others in this group actively collaborate with colleagues at other Universities in the US and abroad.			Global
Kornev	Konstantin	Materials Science and Engineering	visiting professorships			China
Rack	Henry	Materials Science and Engineering	visiting professorships			Global
Hill	Hoke	Mathematical Sciences		Study Abroad to Ireland: Statistics		Global
Khan	Taufiqar	Mathematical Sciences				Global
Saltzman	Matthew	Mathematical Sciences	The COIN-OR project ( <a href="http://www.coin-or.org">http://www.coin-or.org</a> ) develops and publishes open-source software tools for computational optimization			
Viktorova	Irina	Mathematical Sciences		Study Abroad to Russia: Advanced Engineering		Russia

<b>Last</b>	<b>First</b>	<b>CES Department</b>	<b>Research &amp; Publications Topic</b>	<b>Creative or Study Abroad Inquiry</b>	<b>On-campus Instruction</b>	<b>Region/Country</b>
Delhaye	Jean-Mare	Mechanical Engineering	Atomic Energy former director of research and scientific adviser to the French Atomic Energy Commission (now the French Alternative Energies and Atomic Energy Commission)			France
Fadel	Georges	Mechanical Engineering				Global
Georges	Fadel	Mechanical Engineering				France
Joshua	Summers	Mechanical Engineering				France
He	Jian	Physics and Astronomy				China
Larson	Miguel	Physics and Astronomy				Japan/Denmark
Marinescu	Catalina	Physics and Astronomy				Iceland
Meriwether	John	Physics and Astronomy				Chile
Takacs	Endre	Physics and Astronomy				Hungary/Australia
Tritt	Terry	Physics and Astronomy				China/Saudi Arabia

## Programs & Centers

The following academic programs, centers and spaces are managed by departments within the College of Engineering and Science and serve as resources for international or global learning for students. They are arranged alphabetically by the department which houses the resource.

Name	Type	CES Department	Description	Region/Country
Clemson University International Center for Automotive Research (CU-ICAR)	Center	Campbell Graduate Engineering Program	CU-ICAR is a 400-acre campus that will support the state's efforts to build a regional automotive economic cluster, providing advanced engineering education and close linkage of academic and private sector research and development efforts.	Global
Institute for Global Road Safety and Security (CU-IGRSS)	Institute	Campbell Graduate Engineering Program	CU-IGRSS is an interdisciplinary research community dedicated to improving road safety and security through a systemic analysis of the human-vehicle-road system. The Institute brings together nationally and internationally recognized researchers, educators, and government and corporate partners to improve the safety of the automotive transportation environment.	Global
Minor: International Engineering and Science	Academic Program	Non-Specified	Engineering and Science students may earn a minor in International Engineering and Science. An international experience of three months and completion of a foreign language through sophomore level are required for eligibility. The minor must include at least nine credits of appropriate courses at the junior/senior level.	Global
M. Eng Industrial Engineering	Academic Program	Industrial Engineering	The masters of Engineering in Industrial Engineering will expand curriculum to include international content, specifically on the logistics of mass-producing Asian countries.	Global



## Events & Organizations

The following internationally focused events, student organizations, and projects are those managed by faculty within the College of Engineering and Science. These extracurricular activities help bring international topics to a variety of internal and external audiences to Clemson University.

Name	Type	CES Department	Description	Region / Country	Mentor
Engineering World Health	Student Organization	Bioengineering	Clemson Chapter of Engineering World Health EWH offers young professionals an eye-opening, life-changing experience that encourages life-long engagement with global health. EWH also supports training programs in Asia, Africa and Latin America that are building a workforce of in-country biomedical engineering technicians and instructors. Working in partnership with local hospitals, educational institutions and governments, EWH is improving local capacity to run efficient hospitals up to international standards now and in the future.	Global	D. Dean
Clemson Engineers for Developing Countries (CEDC)	Student Organization	Civil Engineering	At Clemson Engineers for Developing Countries, our mission since 2009 is to work with local communities in the Central Plateau of Haiti to develop sustainable solutions that improve the quality of life through interdisciplinary student-led initiatives that embody our core values in partnership with Clemson University, non-profit organizations, and industry.	Haiti	J. Ogle
Training Camp for USA Computing Olympiad	Event	School of Computing	The International Olympiad in Informatics was founded in 1989 by the United Nations Educational, Scientific and Cultural Organization (UNESCO). The training camp for the USA Computing Olympiad has been held at Clemson since 2010, narrowing the field of 24 high-school competitors to the final four who will compete in the International Olympiad in Informatics. The top four from the 2014 training camp go to Taipei, Taiwan to represent the US in the 26th annual International Olympiad in Informatics.	Global	B. Dean
Engineers without Borders	Student Organization	Engineering	Clemson has been working with Engineers without Borders for 3 years with projects and travels in El Salvador, Nicaragua and Gambia. Projects include supporting local businesses, irrigation projects, building parks and donating equipment, fixing broken pumps, etc.	Global	C. Drapcho

## Global Highlights: Key Publications, Projects & Accomplishments

The following are only a small sampling of impressive global work from the College of Engineering and Science. These publications and projects represent the variety of fields of international research at Clemson. Please share your recent publications or projects with international topics to promote international research and studies at Clemson and within the College of Engineering and Science.



### First Dual-Degree Program for Ph.D. Civil Engineering

This summer representatives from the Glenn Department of Civil Engineering flew to Shanghai, China for the signing ceremony to implement a new dual degree Ph.D. program with Tongji University.

Like Clemson, Tongji University is well-known for its Engineering and Architecture programs. Its Civil Engineering, Architecture programs and Transportation Engineering are ranked Top 1 in P.R. China and its architecture program is by far the most competitive. As one of the leading centers for scientific research, the university has 5 state key laboratories and engineering research centers.

### Regenerative Medicine--Clemson & Romania

We have an ongoing research collaboration project with Romania, funded entirely by the Romanian government and supported by an MOU signed between Clemson and the School of Medicine and Pharmacy in Targu Mures, Romania. Under the umbrella of the collaboration, we are training Romanian students and post-docs (4-6 per year) in our lab at Clemson in the area of regenerative medicine.

This project started July 2012 and will end December 2015.

### Clemson Engineering for Developing Countries brought the Heiskell award to Clemson Study Abroad

The Clemson Engineers for Developing Countries (CEDC) Haiti Initiative is an innovative student-directed program that began as an applied engineering program. It now also integrates civic engagement and extends across disciplines to improve the quality of life and to work towards a sustainable future for the village of Cange in Haiti's Central Plateau. CEDC projects have directly impacted over 10,000 Haitians.



The CEDC Haiti Initiative works with Zanmi Lasante, a local nongovernmental healthcare provider, to develop solutions through interdisciplinary student-led initiatives in partnership with Clemson University, non-profit organizations, and industry. The program created its first service-learning experience in the fall of 2009 with seven civil engineering students, who focused on the design for a municipal water filtration and distribution system in Haiti's Central Plateau, serving a population of 3,500. The Episcopal Diocese of Upper South Carolina provided initial funding for the project, and the students raised personal funds to travel, collect data, and initiate the design process.

A few months later, a 7.0 magnitude earthquake hit Port-au-Prince. The devastation resulted in thousands of Haitians relocating to the Central Plateau. The surge in population, coupled with a subsequent outbreak of cholera, placed increased pressure on the student team to complete the water filtration system. Faced with growing health and environmental issues, CEDC branched out to form its first interdisciplinary collaboration with the School of Public Health and the Bio-systems Engineering Department at Clemson University.

Originally a STEM-focused engineering program, CEDC now involves approximately 100 students per semester (freshman through graduate levels) from 30 different majors, working on 15 separate projects in engineering, economic development, and education, all focused on a sustainable future for Cange. Engineering, an underrepresented group in study abroad, remains at the program's core: students from the College of Engineering and Science comprise nearly two-thirds of its enrollment.

The students in CEDC stand to gain much more than hands-on experience in their profession. They witness poverty, sickness, and an unwavering sense of community that few had ever imagined before taking part in the program.

**In addition to doing follow-up research with collaborators at Haydom Hospital, Dr. Delphine Dean and her students met the president of Tanzania.**

Well before the spring semester began, three bioengineering seniors were already doing coursework—in Tanzania. Marci Elpers, Britton McCaskill and Lauren Sosdian worked in Tanzania from January 5-17 as part of the Creative Inquiry course taught by Drs. Delphine Dean and John DesJardins. During the previous semester, the students designed a temperature-sensor and heating blanket system for premature babies in areas where standard neonatal incubators are unavailable. Currently, premature babies in Tanzania are kept together in small rooms heated to approximately 40°C. According to Dean, who accompanied the students, “numerous problems with infections arise from the heat and humidity.” Dean said that the key to the students’ design was to make the device using only inexpensive parts that are readily available in Tanzania. “One of the trip’s goals was to investigate which parts we could get in the three towns we visited,” she said.”

