Many of the world’s most pressing science and engineering challenges are trans-national in nature and many of the leading scientific and engineering resources are located outside the United States. In this context, the National Science Foundation (NSF) and the United States needs to nurture a globally-engaged STEM workforce capable of performing research in an international environment.

Through this NSF-IREES program, our institution was awarded a 3-year grant to develop an international research experience focused on the theme of Sustainable Green Building Design and Construction. This theme was selected for several reasons:

- There is a growing emphasis on energy efficiency and sustainability in the building industry.
- In many developing countries, such as Egypt, there is an acute need for affordable, resource-efficient housing.
- Our university and the international partners have collaborated on research in this area in the past and have jointly held two International Workshops directly related to this theme.
- The main international host for each of the three summers (2015, 2016 and 2017) had been the Housing and Building National Research Center in Cairo (HBRC), an independent government research center performing a leading role in advancing the performance of the building, housing and urban development sector in both the local and regional context.
- Other international hosts:
  - Summer 2015: The host in The Netherlands was similar to the 2015 program, combining education experiences with opportunities to work with mentors on their research projects. During the second two weeks in the UK, the students traveled to Germany, where they were hosted by our partner institution OTH Institute in Weiden together with Europoles. During the second two weeks in Germany the students attended several lectures by experts in sustainability, visited different sites, attended practical experiences at the laboratories of our partner institutions and participated in a network of international contacts.
  - Summer 2016 – Egypt and the United Kingdom: During the 2016 offering, eight undergraduate and graduate students participated. This second program included two weeks in Egypt and two weeks in the United Kingdom. The first two weeks in Egypt provided the students with an initial learning opportunity of sustainable design and construction means and methods. The second two weeks in the UK were spent at Staffordshire University and the students were hosted by our partner institution OTH Institute in Weiden together with Europoles. During the second two weeks in Germany the students attended several lectures by experts in sustainability, visited different sites, attended practical experiences at the laboratories of our partner institutions and participated in a network of international contacts.
  - Summer 2017 – Egypt and Germany: Eight undergraduate and graduate students participated during the 2017 offering. This third offering included two weeks in Egypt and two weeks in Germany.

**PROGRAM BACKGROUND**

**SUMMER 2015 – THE NETHERLANDS AND EGYPT**

Eight undergraduate and graduate students participated in this inaugural program. This program spanned four weeks, with the first two weeks spent in the Netherlands and the following two weeks in Egypt (providing the students with an initial learning opportunity).

During the 2015 offering, eight undergraduate and graduate students participated. This second program included two weeks in Egypt and two weeks in the United Kingdom. This time the students had research mentors in both Egypt and the UK, and were able to work on their projects in a more international environment.

**SUMMER 2016 – EGYPT AND THE UNITED KINGDOM**

During the 2016 offering, eight undergraduate and graduate students participated. This second program included two weeks in Egypt and two weeks in the United Kingdom. This time the students had research mentors in both Egypt and the UK, and were able to work on their projects in a more international environment.

**SUMMER 2017 – EGYPT AND GERMANY**

During the 2017 offering, eight undergraduate and graduate students participated. This third offering included two weeks in Egypt and two weeks in Germany.

**PROGRAM OBJECTIVES**

1. Provide the students with a hands-on international education experience in the emerging area of sustainable green building design and construction.
2. Engage the students in meaningful research under the guidance of U.S. and international mentors and experts on sustainability from the Netherlands.
3. Allow students to create a network of international contacts in order to promote future collaborations.
4. Expose U.S. students to foreign cultures, improve their communication skills, broaden their technical knowledge and provide them with the tools necessary to adapt and succeed in a global environment.
5. Promote diversity by engaging students from underrepresented groups to pursue careers in science, technology, and engineering.

**DISSEMINATION OF RESULTS**

We have disseminated program results through a variety of media, including:

- Conference publications
- Conference presentations
- Web site
- News releases
- A final presentation event hosted by the Department of Civil Engineering and Environmental Engineering and the opportunity to talk about their experiences as well as to present their research findings
- A promotional video

**CONCLUSIONS**

Overall, the international research experience for students has been a success for UAB as well as for our overseas partners. The students have gained valuable research experience in the area of sustainable green building design and construction at the same time that they have acquired a global perspective, by being exposed to engineering innovations and practices in different countries and cultures, and created a network of international contacts in order to promote future collaborations.