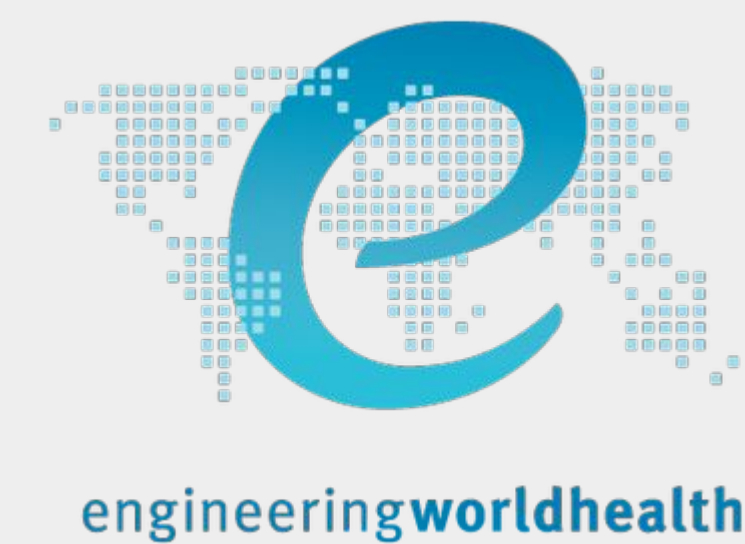




# Engineering World Health in Guatemala

*Class of 2019-2020*

Presenters: Cristina Guzman-Moumtzis and Anna Tilstra-Smith



## New Cultural Experiences



Figure 1: Map of Guatemala

This winter, nine RIT students met up with three George Mason students to repair hospital equipment in under resourced areas of Guatemala through Engineering World Health (EWH). We all landed in Guatemala City and were transported to Quetzaltenango. After a week of training, a weekend cultural exclusion was planned before three groups of four.

Guatemala City

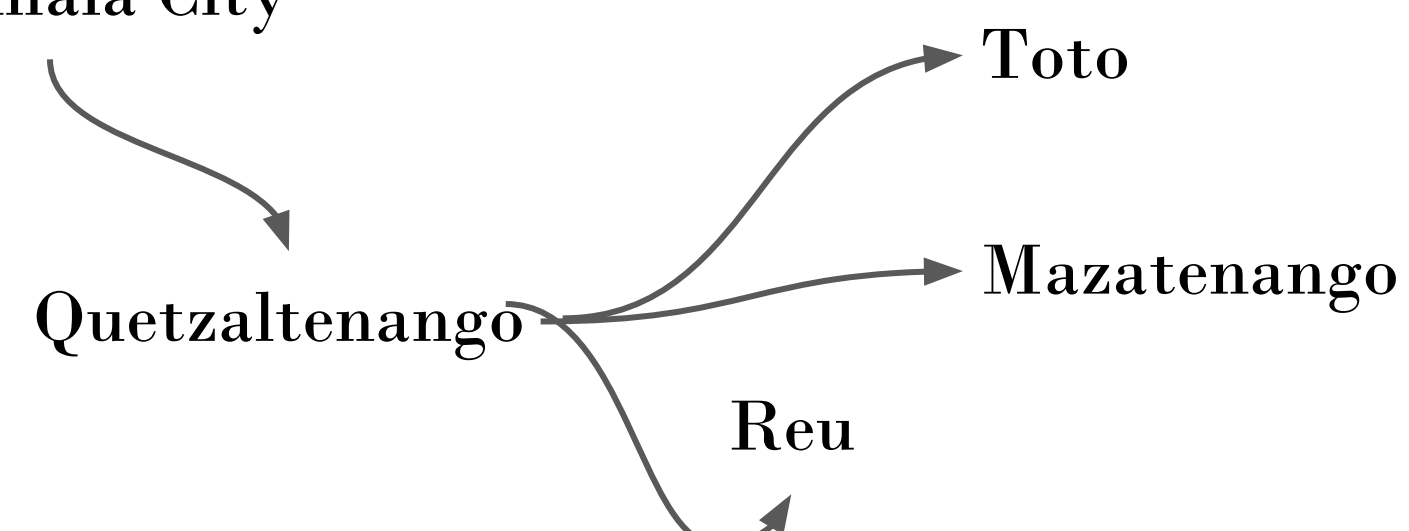


Figure 2: Road map of sites visited

Training consisted of two daily sessions of five hour classes. In the morning, students practiced spanish with local tutors based on their fluency and in the afternoon a circuitry course was taught in groups by a local technician. Both classes helped us develop the ability to quickly diagnose and repair equipment as well as to efficiently communicate the error with hospital staff.



Figure 2: Handmade study games made by one of the spanish tutors



Figure 3: Training kit to build model EKG.

## Hands on experience

The trip mostly consisted of students working in groups to diagnose and repair damaged hospital equipment. Issues spanned from electrical to mechanical and from simple fixes to large scale replacements.

Students were provided with a general tool kit and a spending allowance to purchase specific tools at local shops near the hospital. Some hospitals had their own equipment available for use but critical thinking and resourcefulness became important for the student without such resources.



Figure 4: A damaged electrosurgical unit (ESU). This device required a complete replacement of the ground pad port.



Figure 5: Students Anna TS and Maggie Brooks pose with a repair X-ray light.

While in the hospital, students received a room to work out of and hospital staff frequently visited with damaged devices. Damaged equipment ranged from anesthesia machines to printers.

Some of the equipment simply couldn't be fixed. Due to the availability of supplies, machines that could have been fixed easily had to be abandoned until the next year class could return with those specific parts. In other cases, the damage done to the machines were focused on the motherboard and repairing the machine would have taken time away from other machines with faster repairs.

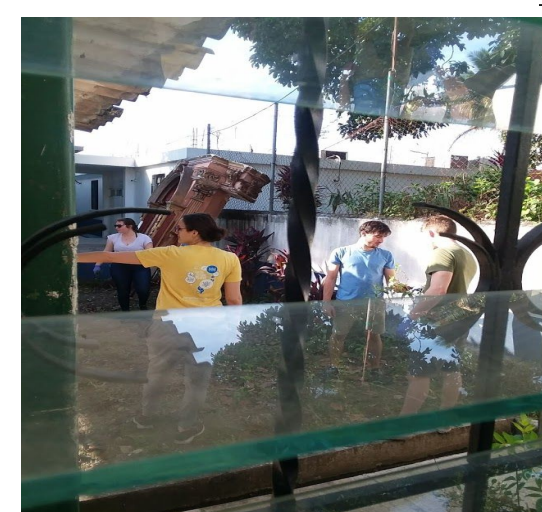


Figure 6: More than just equipment repair. A group works on creating a green space.

Figure 7: An X-ray lamp that required new ballasts and a full rewire.

## Bringing it home

Upon coming back home, the EWH class of 2018 is working hard as ever to begin training the next generation

EWH Club

BIME - 395

EWH Trip

Figure 8: Possible routes an RIT student can take to get involved in Engineering World Health

Student interested in participating can chose to learn more about EWH and medical equipment in he EWH club. Run by RIT students, participants can chose to focus on skills they deem necessary to further their educations. Should students wish to then apply these skills, then can join BIME-395, which is a class dedicated to learning skills specific to fixing hospital equipment as well as how to adapt to a foreign country. From this class, students can choose to sign up for a winter trip to countries such as Guatemala where they can use the skills they learned to help those in need.



For more information on how to get involved contact Dr. Asllani

icabme@rit.edu

Office located in INS-3105

Special thanks to EWH

**ENGINEERING WORLD HEALTH**  
Meeting challenges in development

