Objectives: The goals of this course are for the students to learn the use of engineering principles to improve the lives of those people living in developing societies and for students to better understand the social and moral responsibilities and ethics related to this. This course will concentrate on appropriate technologies related to water quality testing, water supply, water distribution, and various methods of water treatment.

Multidisciplinary Content: This mini-project will include engineering principals used mainly in Civil and Environmental Engineering, Mechanical Engineering, and Chemical Engineering although topics such as engineering ethics, engineering design, research, and mathematical modeling are used in all branches of engineering. Some of the skills that will be developed are surveying, mapping, mathematical modeling and testing of systems, procedures for water quality sampling and testing, various methods of water treatment, and documentation.

Course Structure: Working in groups the students will be asked to research and design a potable water distribution system and a water treatment system to ensure water is potable. These systems will be designed for actual communities in developing societies in places like Nicaragua, Panama, and Cambodia.

In order to do these things the students will need to learn rudimentary surveying using tools such as Abney levels, laser levels, GPS and barometric devices, and GIS mapping. They will learn about the hydraulics and components of gravity-fed water systems; water quality testing for both organic and non-organic contaminants; and methods of water treatment such as sand filters, micro and nano filtration, chlorination, and ultra-violet treatment. Through the activities of this course, students will learn the Engineering Design Process and the rudiments of engineering research, develop useful engineering skills, and hopefully have some fun along the way!

For More Information: Click the link below to see a video from last year's trip to one of our project locations. You can also contact us at any time.

https://www.youtube.com/watch?v=NExY0r4S7w8

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