

## CIV498 Design Project 2018

**Project Title:** Global Sustainable Communities

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### STUDIO SUMMARY

In this capstone design course, student teams will conceptualize and design communities for a variety of developing country/emerging market settings, aimed at poorer communities and households.

After a broad introduction to six thematic areas (urbanization/urban settlement upgrading, disaster reconstruction and preparedness, communities serving extractive industries in remote areas, involuntary settlement, settlements for forced migrant, and urbanization and climate change), students will organize into teams of five. For a topic of their choosing, each team will select a real area of the world to design and plan their 'community' (scope subject to instructors' approval), define the design challenge for the identified community, and set to work.

The design work will be supplemented by subject area lectures by the instructors and, from time to time, guest lecturers. They will normally take place in the first hour of the weekly session; accordingly, students are expected to arrive on time for the class start of 9:10 am. With the exception of week 1, most of the sessions will be devoted to work in teams, with the instructors available to provide guidance and suggestions. The instructors will also help teams learn from each other and share insights.

Organizing to do the work is an important part of engineering practice and organizational life; this includes putting together a diverse team with different skills and approaches to problem-solving, having a 'team charter' setting out how the team works together, and resolving internally different views about how the work is done, burden-sharing, backstopping, etc. The instructors are available to assist teams as requested and appropriate.

Upon successful completion of the course, students will be better positioned to enter the housing and urban infrastructure segments of global engineering.

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### TECHNICAL BREADTH

#### Primary Discipline:

Building Materials  
Building Science  
X Community Development  
Environmental  
Geotechnical  
Structures – Building  
Structures - Bridge  
Transportation Planning

#### Secondary Areas:

X Assessing Alternatives  
Building Codes  
X Building Materials  
Building Science  
X Computer Modeling/Drafting  
X Constructability  
Construction Management  
X Durability  
X Energy Efficiency  
Environmental Assessment  
X Environmental Issues  
Estimating Cost

Groundwater  
Health and Safety  
X Infrastructure Planning  
New Technologies  
Project Management  
X Public Policy  
Quality Assurance/Control  
Resilience  
Scheduling/Planning  
X Social/Political/Economic Issues  
Structural design  
X Sustainable design  
Systems Approach

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Ethics  
Financing  
Foundations  
Geotechnical  
GPS

Transportation  
Urban Planning  
Using analysis software  
Water Treatment  
Other:

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## DELIVERABLES

Class meetings will include lectures on examples from developing countries, and technical, environmental and social topics as well as time for students to work in their project teams. Students will have the opportunity to work collaboratively with the instructors to review progress, discuss ideas and navigate substantive and process roadblocks. In addition to the project work, students will be required to individually present on the various phases of their design, or, subject to the instructors' agreement, a topic covered as part of the course. Topics may include application of internationally recognized environmental and social standards, incorporating gender aspects of community development, or disaster resilience and preparedness.

Deliverables and tentative grade weightings (which will be refined in the final course syllabus) are:

1. Draft Conceptual design presentation (including team structure) to the class
2. Conceptual design (including team work plan, assignments) (7.5% of grade)
3. Draft Preliminary design presentation to the class
4. Preliminary design (7.5% of grade)
5. Draft Detailed design presentation to the class
6. Detailed design (7.5% of grade)
7. Draft Implementation Plan presentation to the class
8. Implementation Plan (7.5% of grade)
9. Draft Final Design presentation to the class
10. Final Design (including the team's Engineering Log) (40% of grade)

At the last studio meeting, each group will present their design project in a moderated discussion, and then submit a final design report.

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## GRADING

Studio Session Participation:	10%
Interim Deliverables (Interim reports, etc.) :	30%*
Interim Presentations:	10%
Final Report:	40%*
<u>Final Presentation:</u>	<u>10%</u>
	100%

\* All members of the team will receive the same grade for the written deliverables.

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