

Challenges Fall 2012

Our challenges for the Fall of 2012 are designed to make it easier for new communities to adopt the AguaClara technologies. Our goals are to reduce costs, improve fabrications techniques, extend our designs to lower flow rates, improve our documentation, and create an AguaClara business to facilitate spread of the technologies.

During the fall semester we will be preparing to take a whole series of technologies to full scale deployment. We will be transferring these technologies to Agua Para el Pueblo over the coming months or during our annual January engineering in context trip to Honduras. The technologies that we are preparing to deploy include low flow unit processes for flocculation, sedimentation, and stacked rapid sand filtration. Foam filtration will soon be ready for testing in very small communities or as emergency water source. The ram pump also will be ready for testing in one of the AguaClara plants in January of 2013.

We will be developing our new theory of flocculation and we will be testing new designs for hydraulic flocculators.

We are exploring options for developing an AguaClara business to separate the implementation side from the R&D effort. AguaClara Inc. will provide engineering services to implementation partners who in turn provide support services to community owned AguaClara water treatment plants. Of course, the goal is to keep communication between all levels of the AguaClara organization so that we can continue to improve the technologies based on feedback from the field.

Teams

Team Name	PDF	Lyx Zip	Advisor	Type of Research	Specialization	Resources	Loca
Demo Plant	? Unknown Attachment	? Unknown Attachment	Heidi	fabrication	fluids, fabrication		B60
Foam Filtration	? Unknown Attachment	? Unknown Attachment	Casey	Lab Research /documentation	fluids, fabrication	PC	B60 B
Coagulant Management	? Unknown Attachment	? Unknown Attachment	Casey	Design /fabrication	fluids, fabrication	PC	B60 or B
Laminar Tube Floc	? Unknown Attachment	? Unknown Attachment	Len	Lab Research	4540, fluids	PC, FReTA	B60 A
Floc Filtration	? Unknown Attachment	? Unknown Attachment	Len	Lab Research	fluids	PC	first floc
Floc Sed Optimization	? Unknown Attachment	? Unknown Attachment	Len	Lab Research	4540, fluids	PC	B60 A
Turbulent Tube Floc	? Unknown Attachment	? Unknown Attachment	Len	Lab Research	fluids, fabrication	FReTA	B60 A
Chemical Dose Controller	? Unknown Attachment	? Unknown Attachment	Heidi	Lab Research /documentation	fluids, fabrication		B60
Enclosed Stacked Rapid Sand Filtration	? Unknown Attachment	? Unknown Attachment	Heidi	Lab Research /fabrication	fluids, fabrication	HTF	B60
Ram Pump	? Unknown Attachment	? Unknown Attachment	Casey	Lab Research /fabrication	fluids, fabrication	HTF	B60
Sedimentation Tank Hydraulics	? Unknown Attachment	? Unknown Attachment	Heidi	Lab Research	fluids	PC	first floc
Data Processor Clean-up	? Unknown Attachment	? Unknown Attachment	Monroe	programming	Mathcad, CS student	PC	
Smart Phone Turbidity Meter	? Unknown Attachment	? Unknown Attachment	Alex	fabrication /programming	ECE, CS student		
Public Relations /Outreach	? Unknown Attachment	? Unknown Attachment	Alex	website /documentation	web design, print design, CAD experience		
Extra Ideas for teams	? Unknown Attachment	? Unknown Attachment		Lab Research /fabrication	fluids, fabrication		

Design team challenges (Tori Klug)

The [design team challenges](#) are available in a [separate google doc](#). The design team will consist of 4-8 students that will work on these tasks individually or in pairs. Desired (but not necessary) skills: Mathcad, AutoCAD, 4540, fluids, Spanish fluency, and engineering design experience.

The source file for the tables is [Challenges Fall 2012.xlsx](#).