

## **GREENTech Velocity Prep 2011: “Changing Lives by Design”**

**Eastside Memorial High School | Texas Engineering Experiment Station**

### **GENERAL PROGRAM INFORMATION**

Velocity Prep was created in 2001 in direct response to industry and education leaders’ desire to see high school students gain relevant work experience and exposure to career paths available in Central Texas. Velocity Prep engages a group of 20 high school students in 160 hours of professional work.

Velocity Prep is delivered as a four-week summer program in which students form a consulting company and are paid a stipend for their work. Skillpoint Alliance’s industry or community partner serves as the Velocity Prep client, “employing” the students as a consulting company to tackle an issue of importance to the client. Working with the client and other relevant experts, students research, plan, develop, and present specific project deliverables to address the client’s real-world problem in a hands-on setting, both on the school campus as well as at the client’s workplace.

The goal of the program is to immerse students in activities and tasks that mirror those found in a real business environment. During the Velocity Prep program students:

- meet with business and community leaders
- learn to communicate and work effectively in teams
- create criteria and boundaries for their project
- tour companies and other relevant sites
- research real-world topics
- complete a final report
- present their work to the public
- get paid for their hard work

### **2011 GREENTech Velocity Prep | OPERATIONAL OVERVIEW**

From July 18 – August 12, 2011, twenty (20) Eastside Memorial High School students will participate in the GREENTech Velocity Prep program as a consultant for their client, The Texas Engineering Experiment Station (TEES). Dr. Dean Schneider has agreed to provide a microgrid project description, to recommend a short list of solar component providers, and content experts about the Texas Colonias. In addition, TEES has agreed to provide funding for the project that will cover the costs associated with a College Mentor stipend (\$3,000), Solar equipment (\$5,000), and Skillpoint administration for incorporating and utilizing the microgrid concept (\$5,000) – see Velocity Prep Budget Template below.

The Velocity Prep student consultants will report to the Green Tech High School on the Eastside Memorial Campus Monday – Friday from 8:00 AM – 4:00 PM for four weeks. The program will be based in the classroom lab, with some parts of the team assisting with the solar build in the school shop. Additionally, the students will have the opportunity to meet with solar tech employers, emergency management officials, and content experts on the Texas Colonias. The project will focus on building a working solar charging station for use in an outdoor setting. In addition, the team will develop designs to scale the solar installation for use as a distributed energy system in the Texas Colonias and for integration with the existing microgrid project being produced by TEES. The students will further develop a design and business plan that incorporates potential uses for outdoor festivals, in the event of a natural disaster, and for extended use in the Texas Colonias.

Dr. Schneider will host an initial project description presentation for the student consultants at the Green Tech High School on the Eastside Memorial Campus during the week of July 18, 2011. The student consultants will

develop a working solar prototype, prepare project deliverables, and make a final presentation by August 12, 2011. Dr. Schneider will make arrangements for a team of four (4) Texas Center for Applied Technology (TCAT) and/or TEES staff members to be on-site for the final project presentation. In addition, Skillpoint Alliance will secure private sector partner participation in the final presentation.

## **PARTICIPANTS**

**The Client** will provide experiences that expose students to industry-related issues and give students a sense of what it is like to work in a professional environment. As much as possible, Velocity Prep should reflect the authentic relationship between a client and consultant, with the client identifying a project that results in actionable items drawn from consultant-generated findings and recommendations.

### Responsibilities

- Identify a real problem in need of a solution; the Client should benefit directly from the students' findings and proposed solution(s);
- Prior to beginning the program, work with Skillpoint Alliance staff and the College Mentor to outline the nature of the problem and help shape the project;
- Select a Client Mentor to serve as the main contact for students throughout the project;
- Secure additional client staff to interact with and provide information to students, as appropriate;
- Serve as host for an initial consultation and for the final student presentation (ideally, at the client's work site)

**Skillpoint Alliance** is responsible for the overall management and delivery of Velocity Prep.

### Responsibilities

- Secure funding, including in-kind support, for delivery of Velocity Prep project
- Secure the participation of the Client and College Mentor
- Work with the Client and College Mentor to identify and shape the project, ensuring that the project goal is reasonable and attainable
- Support the College Mentor in all aspects of the delivery of the project
- Ensure that evaluation, financial administration and reporting processes are in place and carried out

**Students** will gain direct knowledge about their client's industry and acquire the values, skills and work habits demanded by employers and necessary for success in the workplace. Students will learn to effectively work in teams to accomplish identified objectives and produce specific deliverables, including setting reasonable goals and timelines. Finally, students will earn a stipend to ensure that students do not have to choose between participating or obtaining summer jobs.

### Responsibilities

- Develop and monitor a detailed project work plan to include activities, deliverables, due dates, and person(s) responsible
- Work with the Client Mentor and other appropriate experts to acquire necessary information and/or skills, including industry site visits and hands-on learning opportunities
- Conduct a formal presentation of findings and recommendations to the client (family, school personnel and other supporters will be invited to attend)

**The College Mentor** serves the critical roles of acting as a positive role model, facilitating the work of the Velocity Prep company and serving as the liaison between Skillpoint, the Client, and the Project Liaison(s). The Mentor will gain valuable experience by working directly with an industry client, serving as project manager for a large group and preparing a project summary report.

#### Responsibilities

- Prior to beginning the program, work with Skillpoint and the Client to outline the nature of the problem and help shape the project, including identifying additional experts and working with the Project Liaison(s) on logistics and scheduling
- Work with Skillpoint staff to create desired outcomes and evaluation procedures for the project
- Collaborate with the Client as necessary to define the students' work plan
- Facilitate student workflow by ensuring that students' expectations remain reasonable and appropriate to the project, keeping students on schedule and accountable, acting as a sounding board to focus students' ideas and tasks, and addressing student motivation and performance issues
- Serve as a role model by modeling a positive attitude, effective relationships and productive work habits
- Work with Skillpoint staff to identify criteria for awarding bonuses
- Prepare a summary report describing project goals, accomplishments, student outcomes, expenditures, and suggestions for improvement
- Coordinate student transportation and site logistics with Project Liaison

**Project Liaison(s)**, typically a campus or school district staff member, works with Skillpoint staff and the College Mentor to handle the logistics necessary for effective delivery of the project.

#### Responsibilities

- Recruit and match students to the project
- Assist the College Mentor in coordinating and scheduling student engagement with industry leaders, including transportation
- As necessary, work with the College Mentor to ensure that school facilities and necessary equipment are available
- Be available to assist the College Mentor with any last-minute logistical issues
- Maintain student and logistical documentation for the project's summary report

### VELOCITY PREP BUDGET TEMPLATE

Budget includes total expected expenses, allocated Subawardee commitment from TEES, and additional in-kind contributions from third parties or absorbed by Skillpoint Alliance

	Description	Budget	In-Kind	TEES
<b>STAFFING</b>	<b>Velocity Prep Program Management</b> Skillpoint salaries/benefits	\$7,230	\$2,230	\$5,000
	<b>Solar Activities / Training</b> \$1,600   consultant fee	\$1,600	\$1,600	\$0
	<b>College Student Mentors (2)</b> \$3,000   stipend	\$3,000	\$0	\$3,000
	<b>Student stipends (20 @ 160 hours)</b> \$16,000   (20) \$800 stipends (\$5.00/hr) \$1,000   bonuses	\$17,000	\$17,000	\$0
	<b>Metal Fabrication &amp; Engineering</b> \$1,000   Custom design & prototype \$1,500   Metal fabrication \$500   Electrical engineering	\$3,000	\$3,000	\$0
<b>SUPPLIES &amp; EQUIPMENT</b>	<b>Solar Charging Station Kit (\$883.50/kit)</b> \$80 ea.   Universal Battery AGM \$230 ea.   Solar PV Module 40 Watt \$160 ea.   Morningstar Charge Controller w/ LCD Meter \$44 ea.   Breakers 15 amp (4 x \$11) \$5.50 ea.   DIN Rail, 35mm x 7.5mm, Custom Cut, 4.25in \$50 ea.   Red wire and Black wire \$30 ea.   wire glands 3 \$44 ea.   Car Inverter Portable Power Laptop AC Adapter Converter \$100 ea.   Enclosures \$100 ea.   Metal frame \$40 ea.   Hardware	\$2,650	\$0	\$2,650
	<b>Building Materials</b> \$50   Volt meter \$150   Classroom electrical tools \$200   Power drill \$150   Radio Flyer All-Terrain Steel & Wood Wagon \$40   label maker	\$590	\$0	\$590
<b>PROGRAM DELIVERY</b>	<b>Food and Beverages</b> Final Presentation and Reception	\$500	\$500	\$0
	<b>Transportation</b> Four industry site visits @ \$250/visit	\$1,000	\$1,000	\$0
	<b>TOTAL</b>	<b>\$36,570</b>	<b>\$25,330</b>	<b>\$11,240</b>

## **ACTIVITIES**

The key to hosting a successful Velocity Prep is replicating a real-world business environment. Velocity Prep student consultants will develop and lead their own project teams in order to address the needs of actual clients, engage in direct correspondence with mentors and client contacts, define the project scope, and present deliverables to their client. A typical Velocity Prep will engage participants in the following activities:

### **Understand the Client**

Students serve as team members for GREENTech Consulting, which has been hired by a client to investigate a particular problem and provide a viable solution. In order to serve the needs of their client, they first need to understand the client's line of business. Teams will set up a meeting with the client to get to know the client as an individual, what the company does, and how the assigned project will be of value to the bottom line. Velocity Prep consultants will also want to find out how best to communicate with the client, including points of contact, preferred methods of communications, and expected turnaround time.

### **Define the Scope of Work**

Once a sense of the client is established, the Velocity Prep consultants will gather specifics about the project assignment in order to develop a project plan. During the initial client consultation, the Velocity Prep team will determine the problem, clearly define the project deliverables, identify limiting factors (such as time, cost, geography, etc), and establish a timeline for delivering work product to the client.

### **Memo**

Depending on the scope of work, it may be helpful for Velocity Prep consultants to prepare memos that detail team research or potential project recommendations. College mentors and consultant team supervisors will be responsible for requesting memo assignments as needed.

### **Create Criteria & Decision Matrix**

How will you know if your idea is good? How will you prove it to your boss? To your client? Is the solution feasible? What are the project constraints?

### **Project Proposal**

Once an investigative approach has been approved by team leaders or the project coordinator, Velocity Prep consultants will prepare a formal proposal for the client that uses and expands on the memo by offering more details about the intended research strategy, scope of work, and project deliverable timeline. This Proposal could include a preliminary literature review (survey of credible information available). This is the first document that the client will see.

### **Professional Correspondence**

Communicate effectively and professionally with industry & subject matter experts via email. Set up meetings, follow-through with tasks, request data, and send thank you notes.

### **Performance Reports**

Every week the consultants will report their tasks to project supervisors through pre-determined social media.

**Drafts of Report Sections**

Before finalizing the report, Velocity Prep consultants will write a draft of the report sections to be evaluated by the project coordinator. The Report Draft should convince the supervisor that the analysis is either finished or a couple of days away from completion. The report should also show that the project team has a good handle on how to present and format the information, even though all the graphics may not yet be finished.

**Presentation Preparation**

Project team(s) will present final reports to an audience of business and government leaders.

**Final Report**

At the completion of the project, the project coordinator will send the Final Report to the client. This report will include the complete body of research, any decision matrices or criteria, and findings. In addition, the report should cover:

- What are the financial, physical, social, cultural factors that affect your project?
- What was the process your team(s) used to determine the final project?
- What is the suggested course of action for your client?
- Any ethically questionable behaviors to worry about?
- What other factors would have to be in place before this project could be implemented?

<b>PROJECT TIMELINE</b>	
<b>WEEK 1: Client Needs &amp; Work Plan</b>	Orientation: HR Paperwork, Rules, Procedures
	Site tour with client(s): what do they do, size of company, budget, educational background, skills needed to work there
	Overview of the project: Identify the problem, constraints, deliverables, timelines
	Resource exchange: determine points of contact, background data sources, introduction to life as an engineer (TEES)
	Brainstorm solutions: consultant working teams will brainstorm on potential designs and solutions to be shared with client.
	DELIVERABLE: Form project work teams
	DELIVERABLE: Memo detailing brainstorming & designs
	DELIVERABLE: Define Project Deliverables
<b>WEEK 2: Research &amp; Preliminary Findings</b>	Explore design concepts in teams
	Conduct team and individual research
	Site visits with/from subject matter experts
	Specialized skills training/development
	Establish evaluation criteria to determine feasibility
	Team leaders consult with client
	Evaluate alternatives
	DELIVERABLE: Progress Report
<b>WEEK 3: Preparation of the Deliverable</b>	Create a working model of your solution, including costs
	Imagine potential uses and improvements
	Site visits with/from subject matter experts
	Team leaders consult with client
	Conceptualize the final presentation
	Secure the presentation venue and site needs
	DELIVERABLE: Progress Report detailing design concepts, opportunities/challenges – should consider energy storage and integration with solar, wind, gas generators, fuel cells, and/or batteries
<b>WEEK 4: Final Presentations</b>	Draft, edit, and rehearse Presentation
	DELIVERABLE: Final Presentation to Client
	DELIVERABLE: Business plan for charging stations
	DELIVERABLE: Evaluation & Performance Review
	DELIVERABLE: Build instructions (if applicable)
	PAY DAY & Merit Bonuses

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