Course description:

Title	Main topics/ Activity
What issues do we face in education? *How do I learn how to learn*?	• Why do I need to know this? • When will I ever use this? • How is this relevant? Present education leaves many students not engaged in learning and finding it difficult to manage the complexities of life relating to the interface of society, schools, and business.
Needs: Read: ***Wagner, Tony; Dintersmith, Ted (2015-08-18). Most Likely to Succeed: Preparing Our Kids for the Innovation Era***	The skills needed in our vastly complicated world, whether to earn a decent living or to be an active and informed citizen, are radically different from those required historically. Quite simply, the world has changed, and our schools remain stuck in time. "Knowledge workers" have become obsolete. What the world demands today are "smart creatives," the term that Eric Schmidt and Jonathan Rosenberg use to describe the kind of people Google needs to hire in their book How Google Works.
School experience: We will provide the missing skills like problem solving, creative and critical thinking, questioning, meta-cognition reflection, character development, business processing, financial literacy and societal values needed to succeed in today's environment.	Our after-school program will provide a fun environment around interdisciplinary project based learning for charter schools, public high schools, home schools and drop outs.

Mission:

The mission of "Project Academy "After-School is to advance the development in spirit and mind of students drawn from diverse cultural and social backgrounds and to inspire in them a commitment to the best self in the community, education and business world.

The goal of the school's program is the formation of skilled and discerning minds in preparation for higher education, careers and lifelong learning. They will understand that

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problems are opportunities. "The bigger the problem, the bigger the opportunity" (*Vinod Khosla*).

Through its learning and collaboration, Project Academy guide them in becoming life-long learners and also educates its students for service in the community and in today's global civilization as part of human brotherhood.

Values:

The school will foster a community based culture of a learning environment, use of visual thinking process with all treated as adults and with respect.   Key words are: Empathy, kindness, Curiosity, Innovation, Persisting, Flexibility, Continuous learning, Humor and Taking responsible risk.

Need to assess students on what skills they want and need
This is based on time allotted for the class and students background and need.

Skills to be learned while solving the World problem (Skills, Attitude and Behavior)

Problem Solving	Financial literacy	Time management
Thinking skills	Character traits	Self-control/ Values
Collaboration	Continuous improvement/ Quality	Process methods
Measurements/ Feedback	Planning	Risk taking/Stretch goals
Learning from failure	Entrepreneurship	Innovation
Study skills	Negotiation	

Facilitators Need to train local facilitator	The following team will support the groups learning during the project • Bill Wolfson BSEE, MS in Physic
Description:	The class project will focus on the chosen skills that occur during the problem solving process. The students will be challenged to be cognitively ready to learning

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Learning through doing and discussion with other students.	during the process. Included as standards' will be forming the team and the problem solving process.
LEARNING OUTCOMES / OBJECTIVES How are we going to integrate character development?	**What are the learning outcomes:** By the end of this course, the students will be able to: • Clearly articulate the nature of the design process & problem solving • See the World as a place of excitement and inspiration • Use assessment strategy and feedback as learning tools • Use of relevant soft-skills in their life to better interface with society • Begin the steps to become a lifelong learner • Understand the processes within a business and personnel finance • Understand that problems are opportunities in life
Student's Responsibility: *Taking responsibility for attendance and class participation.* *Keeping a journal during the course:* 　o *Take notes* 　o *Questions to ask/ideas and reflections*	• If at any time you start to feel lost or behind in the course, don't panic or keep silent--- let us know so we can help. • Please let us know if we should adjust our communication style. Are we going too fast? Too slow? Are we being too techie?
Student activity	• We will support the students to buy and wear vests with the school logo • Certain students will be given the opportunity to support other students in the learning process. These will be master designers. • Students are viewed as active authors of their own development
Weekly Schedule:	To Be Determine
Implementation: *Areas of discussion …can be tailored to local needs such as the local community food needs.* <table><tr><td></td><td>See the problem/Bug</td></tr><tr><td></td><td>Frame it</td></tr></table>	The course will be done with hands on learning using methods from　*WPI/engineeringlens.org* 🔵 Feed the World 🔵 Heal the World 🔵 Clean the World

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Research List possible solutions Pick a few Select Test Reflection Present solution Other possible problems that could be worked on are the Grand Challenge for engineering determined by the National Academy of Engineering.	• Power the World • Respect the World • Connect the World • Entertain the World • Sports of the World • Music of the World • Record the World • Rcycle the World
Course Rubrics Three areas of learning targets • Knowledge … Content • Skills … Processes • Reasoning … Thinking skills, character development	Assessment (learning targets) will be by skill level with students and community giving the feedback. Badges as translators of competency Create skills targets (badges) like: <table><tr><td>Problem solving</td><td>Character</td><td>Entrepreneurship</td></tr><tr><td>Innovation</td><td>Community</td><td>Values</td></tr><tr><td>Collaboration</td><td>Attention to detail</td><td></td></tr></table>
Course Expectations Team assignments and discussion board postings.	Students are expected to participate in discussion forums and complete the assigned projects on time. Students are responsible for making arrangements with the instructor when difficulties arise in completing an assignment on time.
What Is a Design-centric culture?	Empathy, Who's the customer, something good for society, Understand the need and expected out-come.
should set up the following:	• Web based tool for communication and information sharing • Google Docs • Web Blog
Example of an 8 week schedule	
Week1 Setting up learning elements	• Group Charter • Team • Collaboration and Communication

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Integrate 2 habits/week	- Introduction/ Course objectives - Discussion web tools; problem solving Process - Brain plasticity - Mentor review
Week 2 *Learning is constructed*	- Collaboration 6 hats - Engr. Is everywhere - Values, Group culture
Week 3 … - Forming a team - Learning targets - Develop the requirements	- Selecting a problem, Team rules - Creating target learning goals - Character Development - Roles of team members **Which problem will we work on? (Example)** "Feed the World"… **Focus on our local community** Develop the Requirements for what we want to do What 5 or so items should we judge the success of a possible solution
Week 4	- Re-visit the project selection … Make a list of items of possible items to work on - Project plan - Project Framing - Quality system design… The agenda… Mike Hammer
Week 5 *Create outside community & Business partners*	Outline of tasks; gnat chart Do we need business partners, community involvement
Week 6	Project… Activities Feedback, Measurements, Balanced Scorecard
Week 7	Quality process design, study skills
Week 8	Research, reach out to the community (organizations)
Week	Business plan, Innovation, Entrepreneurship
Week	Feedback
Week	Celebration; Presentation; family invitation & community
Week Reflection of project	- Assessment - Creativity … Making things better

Working together (vertical label between Week 3 and Week 4 rows)

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• <mark>Time capsule for next team</mark> • What content skills did we learn?	• Learning targets assessment • Reflection • How were the roles of team members performed?

Course details:

Major area	Theme
Introduction / Creating a learning collaborative in the classroom / pre-Assessment of engineering knowledge and thinking skill awareness	Attributes, Values, Teacher Skills and the relation to excellence in academics and the larger world of work. Developing the outcome goals for the class.
Work in teams	Part of Team Project …Collaboration, decision making, brain writing
Problem framing and solving Empathy	Part of Hands on Learning … understanding what is the true problem and tinkering with ways to solve the problem
Creative and critical thinking skills around the design process	Learn the tools of brainstorming, brain-writing, and decision making for divergent and convergent processing skills
Brain Plasticity • Carol Dweck, Ph.D • Claude M. Steele Ph.D	… we continuously are able to learn new things Two 30 minutes discussions a total of 60 minutes spent teaching not math but a single idea: **that the brain is a muscle**. Giving it a harder workout makes you smarter. That alone improved their math scores.
Habits of Mind	Built into projects and continuous discussion
Infusion of thinking skills	Create an appreciation for life-long learning by providing opportunities to develop creative and critical thinking skills
Dialogue	… 6 Hats How to create dialogue and not shouting matches. Using dialogue question
Professionalism	Respectful dealing with others
Entrepreneurships / Innovation	Business processes… Persistence, problems as opportunities, finding humor, accuracy in your work, remain open to continuous learning
Conclusions, Self-Assessment Quality focus	Understand why you did certain things, What can you learn from your actions to improve How can you use data to improve?
Community support • **Job training**	• Get a partnership with industry that provides career opportunity if we provide a person with good soft-skills. Retail stores, Warehouses, etc.

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Major area	Theme
• **Internships** • **Technicians** • **Apprenticeships** • **Mentors**	• Relationship with non-profits that focus on this area.
Mentor support option:	A team of mentors from different Business and organizations will be available to support the student. A mentor fair will occur where mentors present themselves to the students. The student will have to opportunity to pick someone they would like to get support from. These mentors will be trained in our program and how they could support a student.

The conversation is structured by the use of four strategies: **predicting, clarifying, question generating/connecting, and summarizing.**

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