



Outcomes, Goals, and Personal Goals

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Electrical, Computer,
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Engineering
Department

(Based on slides by Prof. Shayla
Sawyer)



Rensselaer

What or who do you want to be?

What do you want to do?

Where do you want to go?

Tale of Three Students

The Student
Facing
Unexpected
Adversity

The
Overachiever

The
Student
Athlete

What do these students have in common?

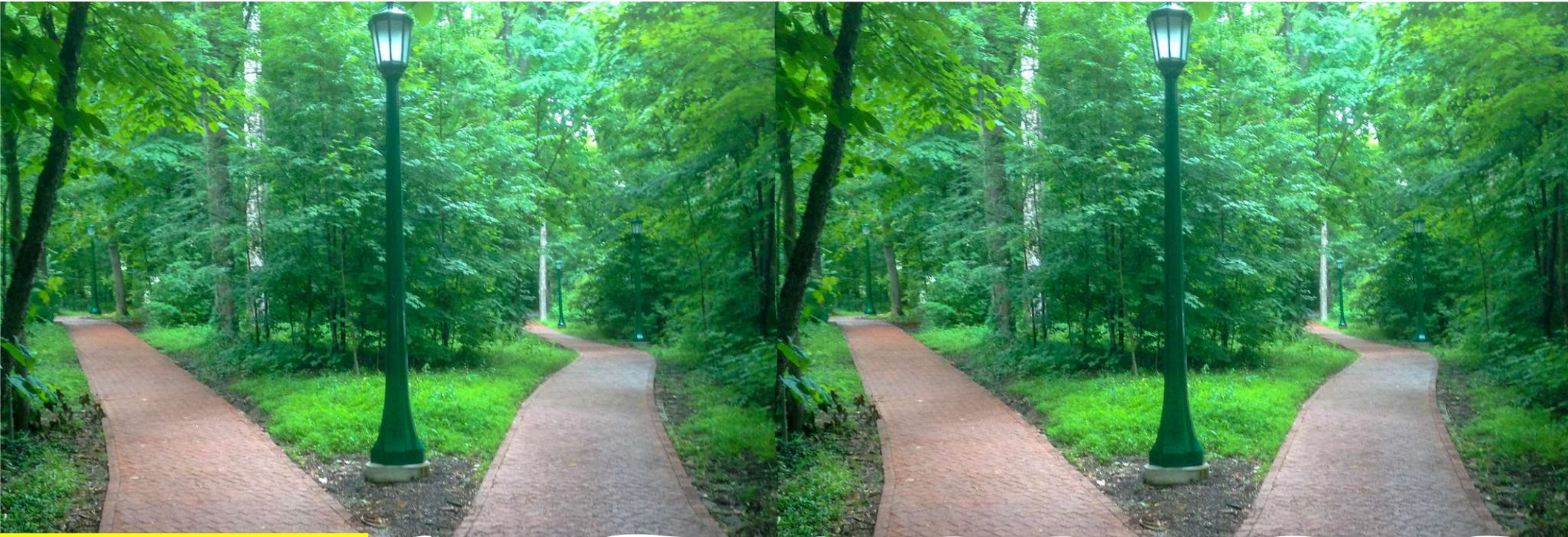
They have a plan!

Starting your 4-year Plan!

Professional Accountability Skill

- Make a draft of my Plan of Study according to your own personal interests at the moment. Write/fill in a draft of your 4-Year [Plan of Study](#) excel spreadsheet. Where do you find 2027 Curriculum templates ([EE](#) and [CSE](#))for all majors? Where will you find [Program templates](#) and more detail about Navigating ECSE?
- Are you unsure about your path? No problem, pick one and go through the exercise! Investigate any path you want to....but fill out a full Plan of Study!

What do engineers do?



Path 1:
Industry

Multidisciplinary
Design Lab

Path 2:
Innovation

Inventor's Studio
I-Corp

Path 3:
Research

BS-PhD Program

Path 4:
Sustainability

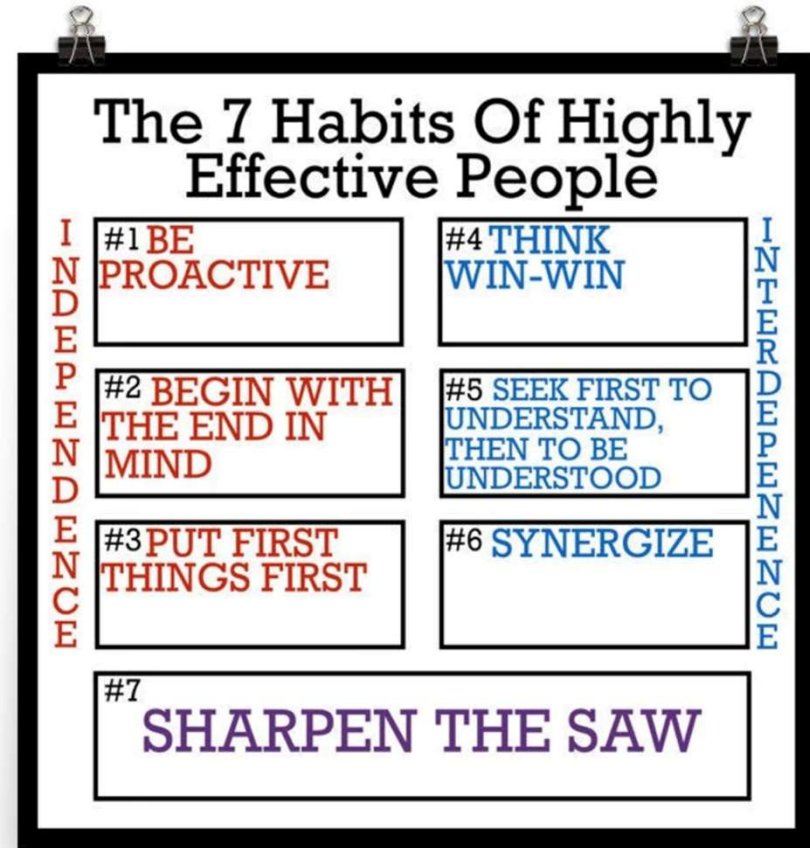
Design Innovation
and Society Dual
Major



Prof. Sawyer's Tools

A few planning tools you might like to use!

In High School...I was the kid with a Franklin Covey planner



<https://icrrd.com/media/01-11-2020-212827The%207%20Habits%20of%20Highly%20Effective%20People.pdf>

Managing your Time: Wander or Strategize

- Year Long: Goals and Objectives
- Semester Long: Shah Method
- Weekly: A Rhythm
- Daily Tasks: check 'em off!



Year Long: Goals and Objectives

Shayla Sawyer

Associate Professor

Goals and Objectives

Fall 2013

Research	My Comments/ Explanation	Futher Comments	Mentor Comments
Objective 1: Publications and Presentations			
Measurable goal: Continue Refereed Journal Publication (>4)	Target high impact journals for more mature research findings (2 publications)		
Measurable goal: Continue conference publications (>2)			
Measurable goal: Increase Invited Talks including Conferences (1-2)			
Objective 2: Proposal writing			
Measurable goal: Diversity Funding Agency Submission (3)	First priority is to diversify funding and to get support for longer term research projects, NASA, DARPA, DOE		
Measurable goal: Interaction/networking	Maintain contact with program managers and collaborators	Collabs: Cornell, SUNY Albany, Hampton, researchers all intiated as lead for larger proposal writing goal, researchers are non-EEs bio or chemical	
Objective 3: Conference attendance			
Measurable goal: Large International Conference			
Measurable goal: Network for Conference organization help (1)	Contact IWZrO		
Objective 4: Pipeline student recruitment		Get 1 or 2 TA PhD student(s)	
Teaching			
Objective 1: This year is for proposals and publications			
Maintain ratings but not primary objective this year	Strategic use of video lectures to supplement if needed	Possible return to UG labrStudio based teaching	
	Establish continuity with SDM courses and resources (flipped classroom attempted and compared with traditional F13 evaluate validity)	Video lectures can be optimized and used as supplement	
Objective 2: Improve course resource use			
Service			
Objective 1: Outreach seminars for minority involvement			
Measurable Goal: GK-12 participation	Large grant for establishing community situated research and interacting with middle school students already in progress		
Measurable Goal: Seminar(s) at HBCUs	Give presentation and/or technical, academic seminar at HBCU alma mater or other		
Objective 2: Review committee involvement			
Measurable goal: Conference committee	Continue conference committee involvement		
Measurable Goal: Continue to ask to become NSF evaluation committee volunteer	Maintain contact with program manager in order to serve on review committee		
Objective 3: Review papers for journals	3 publications for review, 1 accepted		

- https://homepages.rpi.edu/~sawyes/GandO_template.xls
- Use this template to begin any long term project or job or internship!
- Share with Manager, Boss, and in my case Dept. Chair/Dean
- Focuses your mind around YOUR strategy, involves your superiors in the BEGINNING
- **It's an insurance policy**, bad bosses can move around your goals at the last minute during evals...but you wrote them and discussed BEFORE

Mon	Tue	Wed	Th	Fri	Sat	Sun
13 DEESE Circuits	14 2-2pm OH 2-4 LCA	15	16 DEESE Circuits	17 DEESE Circuits	18	19
20 DEESE Circuits	21 2-2pm OH 2-4 LCA	22	23 DEESE Circuits	24 DEESE Circuits	25	26
27 DEESE Circuits	28 2-2pm OH 2-4 LCA	29	30 DEESE Circuits	31 DEESE Circuits		
4 DEESE Circuits	5 2-2pm OH 2-4 LCA	6	7 DEESE Circuits	8 DEESE Circuits	9	10
11 DEESE Circuits	12 2-2pm OH 2-4 LCA	13	14 DEESE Circuits	15 DEESE Circuits	16	17
18 DEESE Circuits	19 2-2pm OH 2-4 LCA	20	21 DEESE Circuits	22 DEESE Circuits	23	24
25 DEESE Circuits	26 2-2pm OH 2-4 LCA	27	28 DEESE Circuits	29 DEESE Circuits	30	31
1 DEESE Circuits	2 2-2pm OH 2-4 LCA	3	4 DEESE Circuits	5 DEESE Circuits	6	7
13 DEESE Circuits	14 2-2pm OH 2-4 LCA	15	16 DEESE Circuits	17 DEESE Circuits	18	19
20 DEESE Circuits	21 2-2pm OH 2-4 LCA	22	23 DEESE Circuits	24 DEESE Circuits	25	26
27 DEESE Circuits	28 2-2pm OH 2-4 LCA	29	30 DEESE Circuits	31 DEESE Circuits		
3 Jan	4	5	6	7		
10	11	12	13	14		
17	18	19	20	21		

CLASSES / LECTURES
MEETINGS
PROFESSIONAL EVENTS
SOCIAL NETWORK

2 SBA in Circuits
→ MLC Circuits
← Intro to EESE
imk Bob
Korlock

TRIP

BOARD ANNUL
DOPADRETRCAT!

* MOVG - JWOAY *

AME Birthday

CELEBRATE
JANUS' B-DAY

Semester Long: Shah Method

- Recently inducted National Academy of Engineering Member Dr. Manoj Shah strategy
- Short term goals in organized way in plain sight to schedule meetings/events/major deadlines/family etc.

Weekly Rhythms:

College Days mapped out
Yes I DID follow these
Freshman Year

You get into a rhythm and
brain sharpens around it

I PLAN for me time and
rewards

I PLAN for naps, workouts etc.

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
4:00	Practice	Practice	Practice	Practice	Practice		
5:00							
6:00							
7:00							
8:00	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast		
9:00	CHEM 2201 Intro to Chemistry STC 235	Review Math	CHEM 2201 Intro to Chemistry STC 235	Review Chem	CHEM 2201 Intro to Chemistry STC 235	Breakfast	Breakfast
10:00						Pregame	Church Service
11:00	Review Chem					Study	
12:00	Lunch	Lunch	Lunch	Lunch	Lunch		Brunch
	Nap	MATH-4500 Diff Eq DCC 235	Nap		MATH-4500 Diff Eq DCC 235		
1:00	Review Phys			CHEM 2201 Lab for Chem STC 426			Study
2:00		Nap	ENG-2000 Intro to EE OL 500		Nap	Warmup	
3:00					Pregame	Game	
4:00	PHYS-3200 Physics II OL 311		PHYS-3200 Physics II OL 311	Nap	ENG-2000 Lab Intro EE OL 500		Study
5:00	Dinner	Dinner	Dinner	Dinner	Warmup		
6:00	Study	Study	Study	Study	Game	Chill	Chill
7:00							
8:00							
9:00					Chill		
10:00							

SMART Goals

SMART GOALS

S**M****A****R****T****SPECIFIC**

Be clear and specific so your goals are easier to achieve. This also helps you know how and where to get started!

MEASURABLE

Measurable goals can be tracked, allowing you to see your progress. They also tell you when a goal is complete.

ACTIONABLE

Are you able to take action to achieve the goal? Actionable goals ensure the steps to get there are within your

REALISTIC

Avoid overwhelm and unnecessary stress and frustration by making the goal realistic.

TIMEBOUND

A date helps us stay focused and motivated, inspiring us and providing something to work towards.

EXPLAINED

THE COACHING
TOOLS COMPANY.COM

SMART Goals and Timeline

Milestones

Outline your goals and deadlines for at least the upcoming Milestone. Try to fill out as much as you can for the other Milestones so the TA can give you advice.

Milestone 1 (Date: 3/9)

- Research comparators and thermistors
- Implement decision and amplification logic for temperature control
- Install thermistor and immersion heater

Milestone 2 (Date: 4/13)

- Implement amplification circuit for lighting and nutrient release
- Install nutrient release mechanism and light
- Design and implement a circuit for a day/night cycle timer
- Design and implement a circuit for the nutrient release timer

Milestone 3 (Date: 5/4)

- Filter the temperature sensor
- Research transformers and standard wall plugs
- Implement power source and transformer to supply system
- Implement active filter

Reason for update (if applicable)

Original project plan submission was confusing to Professor Sawyer (and everyone else). Also updated parts list for more applicable solenoid.

Expenses and Parts

Parts List

List an expected number of parts you will need that **are not in your circuits kit**.
want to purchase.

Component	Cost
Electric Immersion Heater	\$10
Waterproof Thermistor	\$6
Aquarium Air Pump	\$17
Grow Light Bulbs	\$7
Lamp Sockets	\$12
Hydroponic Plant Food	\$16
Fish Bowl	\$10
Waterproof Solenoid Valve	\$13
Total	\$91

Technical Barriers, Issues, Skills Needed...

What potential issues do you foresee with this design?

Electronics and water don't mix well. There could be issues with leaks. Also, this plant will be grown in mostly a controlled environment (apartment living room with no natural light) with instances of extreme environments (~10°F), which does not completely simulate growth in extraterrestrial or submersible habitats seen in the future.

What skills and concepts do you need to learn to do this?

- AC to DC conversion
- Dealing with very large voltage differences
- Amplifier circuits
- Filters

What is your plan if this design does not work?

If the issue is caused by the hydroponics system, switch to a plant potted in soil. If the issue is unrelated, switch to a different project.

Who will be your end-user?

Our end-user will be the three of us and Shiny's roommates, the hydroponic system will be housed in her apartment.

Checklist:

A TA must check each of these items to pass the plan. Be prepared to answer each of these questions with justification.

Project Planning and Scope: High Level Block Diagram

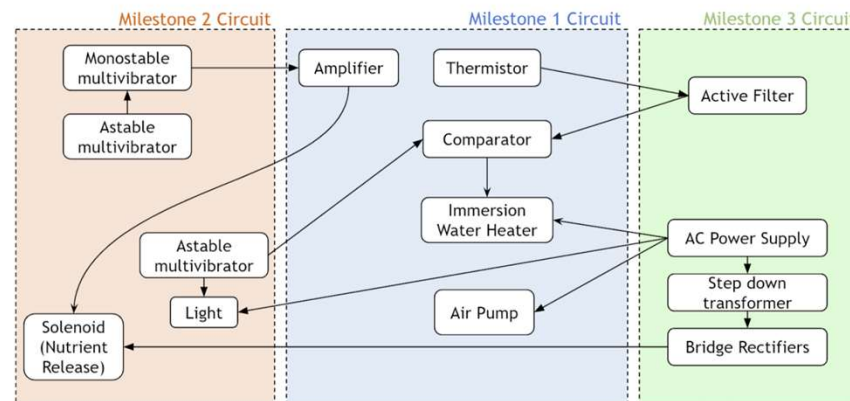
Automated Aquaponic System

3

Project Description

Include a block diagram. Label blocks with their corresponding unit.

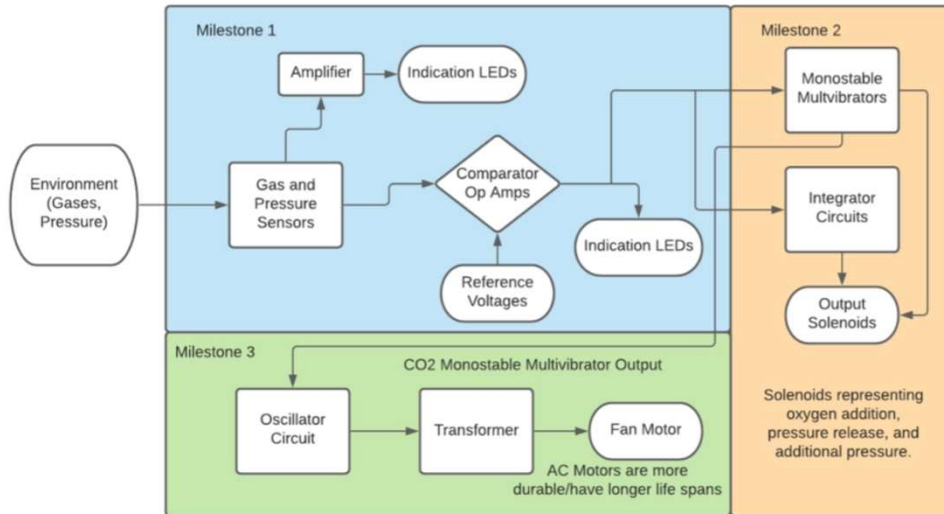
Our project is to make a self-regulating hydroponics system. The goal of this system is to allow for the cultivation of plant life in human settlements where they otherwise cannot be taken care of easily (such as extraterrestrial or submersible habitats), and to do so with minimal effort and maintenance.



We will wire the thermistor directly into the decision circuit for Milestone 1, but it will be actively filtered for Milestone 3. Timer implementation for the decision circuit will be manually simulated until Milestone 2

Project Plan Assignment

Project Description
Include a block diagram



Another High Level Block Diagram example

- Atmospheric Control System
- Notice logical movement and labeling of how the milestones connect
- There is a more logical start and end to this flow chart

Today's Goals: Proof of Skills Day 1

Proof of Skills Submission Examples

[Circuit Simulation Example](#)

[Experimental Measurement Example](#)

Your TA and
SA Team (ask
for help!)

<u>Name</u>	Email	Hours
Md Ibrahim Alam	alamm2@rpi.edu	10
Vedran Beganovic	beganv@rpi.edu	10

What to do...

1. Work on your skills in partners or small groups...
2. **If you have a question ask! Raise your hand**...if there is a picture you can post it in the chat too!
3. **Help someone else**...
4. Post your work to Gradescope with your rubric for the day. Note which skills you attempted in your category for today – update this same rubric each day and submit it with your work on that category.
5. Try to ensure EVERYONE on your team has the most things submitted
6. If you are done... [sign up for Proof of Skills Day 2](#) and start the minimum!
7. **ALL Proof of Skills Categories are due by September 18th at 12:00PM.** This is the start of Lab 01. **You NEED these skills for the labs.** Finish your Proof of Skills category for the day before the next day of Proof of Skills to keep up.
8. You will have a chance to iterate to improve your score on Proof of Skills later in the semester.
9. Your only other homework until next class is completing today's Proof of Skills category and signing up for a new one for Day 2