Cooper Union’s Invention Factory

What is “Invention Factory”? 

Invention Factory is a summer program for Cooper Union engineering students made possible by a generous donation from the Edward Durbin and Joan Morris Innovation Fund. You will have six weeks (June 2 – July 11, minus July 4) to work intensively with a partner on an invention that you choose (subject to our approval). We will provide a budget of up to $2,000 per team for components, access to and training on laser cutters, 3d printers, our machine shop and machinists, etc. Your presence will be required each day at Cooper, Monday through Friday, 11 a.m. to 5 p.m. – but we expect that you will want to work late into the night, especially towards the end of the program. We will feed you lunch each day. You will be paid $1,000 to participate in the program. You will compete for a first prize of $5,000 for “best invention.” By the end of the program you will have submitted a provisional patent application to the U.S. Patent and Trademark Office for your invention.

To get a sense of the sorts of inventions you might produce, take a look at these Youtube videos generated by last year’s Invention Factory:
http://youtu.be/xExVzADFeWo
http://youtu.be/HKslr1ox4-Q
http://youtu.be/2ZK93-hFISQ
http://youtu.be/h28UofPGfS0

Why the name “Invention Factory”? 

We chose the word “factory” to make clear that we expect that your intensive effort for six weeks will yield prototypes of marketable products. We believe that as Cooper engineering students you are so talented that your inventive efforts have a good change of succeeding in the marketplace. As this is a summer program, you can develop your ideas in a supportive environment free of classes and other obligations.
Will I be applying for a patent?

Yes, by the end of the program you will file a provisional patent application with the U.S. Patent and Trademark Office. A provisional application is nothing more than a fairly detailed description of your invention with a few figures. While Cooper Union has not finalized a patent policy as of the date of this document (2/2/14), inventions produced through Invention Factory will be the sole intellectual property of the student inventors. Your provisional application will give you limited protection of your invention for one year from the date it is filed, in the event that you wish to commercially exploit your invention and seek an enforceable patent by filing a non-provisional application. (Don’t worry about the terminology, we’ll teach you a fair amount about patent law during the program.)

Who can apply?

All full-time Cooper Union engineering students (including seniors who will be graduating in May) may participate in this program.

How do I apply?

Selection for the program is competitive. We will choose twenty students to participate (ten teams of two students). There is no application form. Please submit, in hardcopy, ONE of:

* A portfolio of your creative work (which may include work done before Cooper, at Cooper, or outside of Cooper) or...
* A letter of recommendation from someone who is likely to convince us of your energy, focus, and creativity or...
* An essay, explaining why you are a great fit for the program.

Applications will be evaluated on a rolling basis. Apply as soon as you can! We may interview some or all applicants. March 18 is the last day to submit an application.
What kind of invention might I work on?

You will choose your project (and your partner) during the first week of the program. A critical focus of the selection process is determining that your invention addresses a real need -- a consumer need, a societal need, or both. We don’t want you to invent a particular widget for the reason that you CAN invent that widget – the world may not need it, and therefore may not be willing to pay for it. You will have to convince us that there is a need for your invention before we approve your project.

Another important criterion will be feasibility. We want you to have (or be able to quickly develop) the expertise/skills necessary to complete a working prototype of the invention within the six week program. This precludes overly ambitious proposals such as tissue engineering and nanostructures. Other constraints on project selection: no chemical inventions and nothing that would require IRB approval (i.e., involving human subject experimentation).

To use a little patent terminology, we are looking for inventions that can yield “utility patents” (inventions that perform a useful function, not purely ornamental creations that could receive a “design patent”). Your invention must be both “novel” and “non-obvious” – which mean, respectively, that you must be the first to invent this thing, and your invention must be, in some sense, non-trivial. Your invention may be an improvement of someone else’s existing invention.

Your invention must have commercial potential (“need”). Your invention must be something tangible – something you can build. You will spend much of your time making, testing and refining a prototype of your invention -- and demonstrating it to others. Your invention may involve software, but it cannot consist entirely of software (e.g., a cellphone app).

Can you give me an example of an appropriate invention?

We are hesitant to do this, lest it narrow your thinking, but consider “Zip Notes.” http://www.zipnotes.com/ This very simple device that might have gone from “conception” to working prototype in a matter of weeks. The invention was a
commercial success for Maurice Kanbar, a Cooper Union benefactor and a prodigious inventor.

What if I haven’t invented something before?
You are a Cooper student. Believe in yourself. We believe in you.

Is this an entrepreneurship program?
No! There will be no writing of business plans, considerations of marketing or seeking venture capital. This is a program in inventing.

What are the deliverables at the end of the program?
You will file a provisional patent application that will be backed up by a prototype that you have developed and tested. Cooper will pay the filing fee for your provisional application.

You will create a short video demonstrating your invention.

You will present your invention to an external jury that will include engineers, patent lawyers, consumers and venture capitalists. The jury will select the “best invention.”

What do I get if I win?
$5,000 for first prize.

What do I get if I don’t win first prize?
An exciting summer experience. Pizza. A $1,000 stipend. A cool T-shirt. Caffeine. You will learn just enough about patent law to help you protect any inventions you might develop in the future. Even if you don’t win, your invention may still have commercial potential.

How will the program be structured?
By the end of the first week you will have selected your partner, identified your problem, studied the “prior art” (has someone else already made your
invention?), and come up to speed on the laser cutter and 3D printer (whether or not your particular project requires these tools).

By the end of week two, you should have conceptually finished the design of your invention and ordered any required components. You may already be working on a prototype.

Weeks three through six will focus on building and refining prototypes, testing your invention, subjecting your prototype to critiques from other members of the program as well as outsiders. Critiques will focus on the need for your invention, whether or not your invention meets the need, and diverse practical considerations (safety, size, weight, and cost). Everything you do must be documented.

There will be plenty of unstructured time for you to develop and refine your invention.

Who is the “we” you keep referring to?

The program will be overseen by Professors Eric Lima and Alan Wolf. Eric Lima is a professor of mechanical engineering and an avid DIY builder. He teaches several of the design classes in the mechanical engineering department. He holds three patents. You can learn more about him and some of his projects at https://engfac.cooper.edu/lima2. Alan Wolf is a professor of physics, a registered patent attorney, and has taught patent law courses at Cooper and Cardozo Law School. You can learn more about him and his activities (including supervising the drafting of provisional patent applications by Cooper students) at https://engfac.cooper.edu/wolf.

Additional FAQ

Who will own my work?

You and your partner. But if you want to protect it with a patent (assuming it is patentable) you should file a non-provisional patent application within one year of the filing date of the provisional application.
When will I get paid my stipend?

You will be paid at the end of the program provided that you completed all requirements of the program (attendance, the prototype, the video, the provisional patent application, etc.). You must also complete all requirements by July 11 – no extensions.

Must I work with a partner?

Yes. If you already have a partner in mind, the two of you should apply separately. There is no guarantee that we will accept both of you. Teams will form by the end of the first week of the program.

What if I don’t find a partner / don’t like my partner / my partner quits halfway through the program?

We expect some of these issues to arise, just as they do in the “real world.” We will deal with such problems as they arise.

Can I work in a group of 3?

No.

Is this program only open to engineering students?

Yes, funding for the program is specifically directed towards engineering students.

Will there be classes?

Yes. They will be informally structured, without tests or grades, and they will mostly take place in the first week. We may offer a few more as needed or as the opportunity arises. But mostly this program is based on giving you the support and opportunity for you to invent.

Can I get academic credit for participating?

No.
During this program can I also... (work at a job/take a course at Cooper or elsewhere/ participate in an externship)?

No.

Can I continue a project that I am already working on?

No.

Do I really need to be there from 11 to 5 every weekday?

Yes.

I have to leave a week early, is that okay?

No.

What will I be judged on?

Identifying a need, meeting that need, and meeting the need *practically*. While there is a need for a can opener, it probably shouldn’t weigh 100 lbs., cost $1000 or emit gamma rays.