Jan 17: principles and practices, great projects, introductions, final presentations  
Jan 22: recitation: version control

Jan 24: project management  
Jan 29: recitation

Jan 31: computer-aided design  
Feb 05: recitation

Feb 07: computer-controlled cutting  
Feb 12 recitation

Feb 14: electronics production  
Feb 19 recitation

Feb 21: 3D scanning and printing  
Feb 26 recitation

Feb 28: electronics design  
Mar 05 recitation

Mar 07: computer-controlled machining  
Mar 12 recitation

Mar 14: embedded programming  
Mar 19 recitation

Mar 21: mechanical design  
Mar 26 recitation

Mar 28: output devices  
Apr 02 recitation

Apr 04: machine design  
Apr 09 recitation

Apr 11: Break  
Apr 16: recitation

Apr 18: molding and casting  
Apr 23 recitation

Apr 25: input devices

Apr 30 recitation

May 02: composites

May 07 recitation

May 09: networking and communications

May 14 recitation

May 16: interface and application programming

May 21 recitation

May 23: applications and implications

May 29 recitation

May 30: invention, intellectual property, and income

Jun 05 recitation

Jun 06: project development

Jun 11 recitation

Jun 13: project presentations

Jun 15: project presentations

Jun 18: project presentations

Jun 20: project presentations

Global lectures happen on Wednesdays at 9:00 on the US East Coast (ranging from 6:00 on the West Coast to 23:00 in Japan).

Recitations happen on Mondays at the same hour.

Regional Reviews will be organized by Mentors.

Fab Academy Course Structure

HOW TO MAKE (ALMOST) ANYTHING

The Fab Academy teaches principles and applications of digital fabrication. It was developed to teach hands-on skills in fab labs, which began as an outreach project from MIT’s Center for Bits and Atoms, and has grown into a global network of more than 500 labs.

Fab Academy instruction is based on MIT’s popular rapid-prototyping course How To Make (almost) Anything, both taught by Prof. Neil Gershenfeld.

DISTRIBUTED EDUCATION

Fab Academy offers a distributed rather than distance educational model: students learn in local workgroups, with peers, mentors, and machines, which are then connected globally by content sharing and video for interactive classes. The individual labs are supported and supervised regionally by supernode sites with more advanced capabilities, expertise, and inventories.

ACCREDITATION

There is no global accreditation for these skills. Instead, each student builds a portfolio that documents their mastery of them individually, and their integration. These are reviewed by their local instructors, regional gurus, and then centrally to ensure that each student meets global standards and follows evolving best practices. The Fab Diploma is earned by progress rather than the calendar, for successful completion of a series of certificate requirements. The instructional sequence requires six months to cover, and the time to finish has ranged from that up to a few years. The Fab Diploma is awarded by the Fab Academy. It has no institutional connection with MIT (and none should be claimed), but a number of the participating sites offer it overlaid with their local accreditation. It recognizes readiness to work in, and establish, a fab lab. The Fab Diploma has led to students obtaining employment, investment, admission, and recognition.

ACADEMANY

The Fab Academy platform has subsequently been used to add classes (collectively called Academany) that share the model of hands-on instruction to students in workgroups, with local mentors, linked by shared content and interactive lectures by global leaders. The first of these is How To Grow (almost) Anything, an introduction to biotechnology with a faculty team led by Harvard’s Prof. George Church, with more classes under development, as well as programs for more advanced study planned.

CONTENT​

1. digital fabrication principles and practices – 1 week

2. computer-aided design, manufacturing, and modeling – 1 week

3. computer-controlled cutting – 1 week

4. electronics design and production – 2 weeks

5. computer-controlled machining – 1 week

6. embedded programming – 1 week

7. 3D molding and casting – 1 week

8. collaborative technical development and project management – 1 week

9. 3D scanning and printing – 1 week

10. sensors, actuators, and displays – 2 weeks

11. interface and application programming – 1 week

12. embedded networking and communications – 1 week

13. machine design – 2 weeks

14. digital fabrication applications and implications – 1 week

15. invention, intellectual property, and business models – 1 week

16. digital fabrication project development – 2 weeks

Check the Fab Academy content archive for more information: <http://academy.cba.mit.edu>

Fab Academy Handbook

<http://docs.academany.org/FabAcademy-Handbook/_book/>

**Glossary**

**GLOSSARY OF FAB ACADEMY TERMS**

**Applicant**: a person that applied to program by filling the online form.

**Archive or Repository:** is the data structure that stores the student’s pages, in which they document their weekly progress.

**Certificates:** course units that provide familiarity with technical options and capabilities, hands-on experience and direction for further study of the topics covered by the course. Each requires, and is evaluated by, developing and documenting weekly projects. They are periodically renewed to reflect best practices and typically require one week for completion.

**Continuing student**: a student that has done one or more assignments and paused his/her studies.

**Diploma**: is the result of the sum of 19 Fab Academy Certificates, and constitutes the standard qualification for the Fab Academy program.

**Former Student:** a person that has applied to the program but didn’t started classes, or manifested his/her desire of dropping out, or has been inactive for more than 3 years.

**Faculty**: is in charge of content curation and gives global lectures.

**GitLab**: is the distributed version control system that Fab Academy uses for project management and as repository for the student’s work.

**Global Evaluation Process**: is the process by which students are evaluated in our distributed educational model. The evaluation of the student has 3 stages: local reviews, run weekly by the Instructors; global reviews, run weekly by the Faculty during the Global Lectures and by the Mentors during the Reviews; and the final evaluation, run by the Global Evaluation Committee, a group of experienced Instructors and gurus that will review the student’s work only based on the documentation of their assignments and final project.

**Global Lectures:** are the main lecture sessions, delivered remotely by the Faculty and comprised by 2 sections:  content delivery and assignments review. They take place in the MCU and are mandatory for students, instructors and gurus.

**Global or Central Coordination:** is the primary administrative contact, specifically responsible for nodes and students application and admission processes, coordinates the Scholarships Program and the Global Evaluation process. It is also in charge of managing finances and record keeping.

**Graduate / Alumni:** a student that has finished all the assignments and passes the Global Evaluation process.

**Guru / Mentor:** a Fab Academy graduate that has more than 4 years of teaching experience and it is actively engaged in the Fab Lab Network; recognized by their peers as such.

**Instructor:** a Fab Academy graduate that teaches the Fab Academy course. A Novice Instructor is teaching Fab Academy for the first time (1st year), so he/she requires support from an Experienced Instructor or a Guru.

**MCU:** stands for “Multipoint Control Unit” and it is a system for simultaneous video conferencing among several remote points. This allows students to not only receive the classes remotely, buy also to be able to interact with the Faculty and with the rest of the nodes. It is also called the “bridge”.

**Node:** is a Fab Lab that has all the requirements needed to offer the Fab Academy program and has actively manifested its desire to offer the program.

**Prospective student:** a person interested in the program but that has not yet applied.

**Regional Reviews**: are homework review sessions led by the Mentors and organized according to regional time.

**Student ID number:** is the student’s identification number, and it is originated during the application process. When a prospective student fills the application form, the system sends back a confirmation email with a 3-digits number, that will serve as ID number.

**Student:** a person that takes active role in the class once the course has started.