QUEENS COLLEGE makerspace ROSENTHAL LIBRARY 101

LOCATION

Benjamin Rosenthal Library
Room 101

HOURS

Please see website for seasonal & daily operating hours.

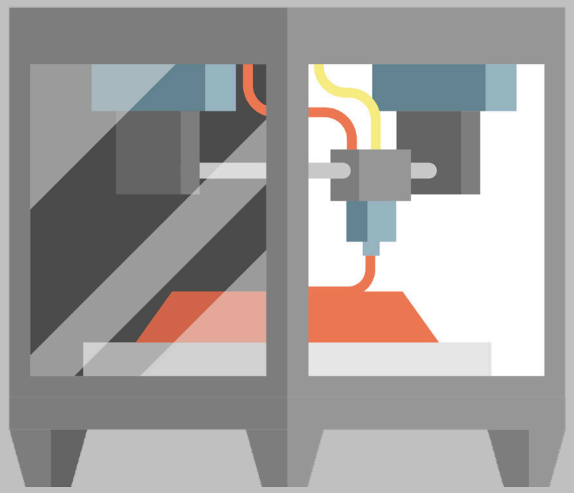
http://qcmaker.space

@qcmakerspace makerspace@qc.cuny.edu

#QCmakers

QUEENS COLLEGE CUNY

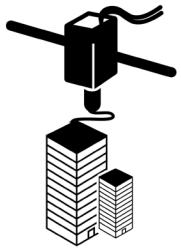
3D-printing



There is no magic ‘3D-print’ button

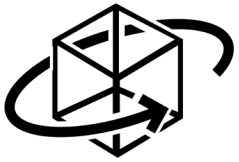
It is an art that must be learned.

What is 3D-printing?



3D-printing is regarded as an *additive manufacturing* process - typically because successive layers of a material are deposited based on user-defined parameters. In this regard 3D-printing is seen as the opposite of *subtractive (reductive) manufacturing* appliances such as lathes or milling machines, which hollow or cut away from a block of material to create a finished object. Originally 3D-printing was used for creating quick iterations of manufacturing prototypes, so it is sometimes still referred to as *rapid prototyping*. Today, however, very complex parts - including mechanical interiors - are possible with 3D-printing, and the range of materials is always expanding, from plastic to metal and ceramics to carbon fibre. Each printer varies in design and capabilities - and knowing the limits of each printer takes time to learn and skill to achieve your desired results.

Some basic terminology.



CAD – Computer Aided Design

CAM – Computer Aided Manufacturing

G-code – the language that tells 3D-printers how to turn your design into an object

Infill – the amount (%) of material and the design (pattern) used to ‘fill in’ the hollow part of the 3D-print

Layers – 3D-prints are made with successive ‘layers’ of raw material (typically PLA)

PLA – polylactic acid is a bioplastic available in a wide range of colors and attributes

Shells – the outermost layers of a 3D-print

.STL – short for stereolithography, this is the file type generated by CAD software

XYZ – Cartesian coordinate system for referencing objects in 3D space

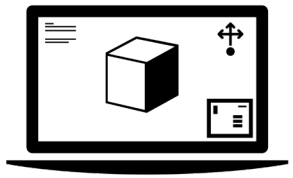
Safety is paramount in the QC Makerspace. Please scan the QR code to read our Safety Guide online:

QUEENS COLLEGE | makerspace

The QC Makerspace team maintains the 3D-printers and will provide the resources you need to fabricate your ideas, but you must spend your time making those ideas come true.

There is a lot to learn in the exciting space of 3D-printing! We have provided some resources in this pamphlet and can point you towards other solutions based on your needs.

Where to get started?



***What is 3D printing?* by 3Dhubs.com**
https://www.3dhubs.com/guides/3d-printing/

***Make: 3D Printing* by Anna Kaziunas France**
ISBN 978-1-457-18293-8

TinkerCAD.com
This free software is a great place to start for beginners. It runs in the browser, so it works on all computers regardless of their OS. It does require an Autodesk account.

Thingiverse.com
A website with a repository of readymade 3D files.

YouTube.com
Search “3D printing” for lots of great tutorials, tips-and-tricks, and other insightful videos on the world of 3D-printing.

Linkedin.com/learning/
Formerly Lynda.com, LinkedIn Learning has videos and courses on 3D-printing for beginner, intermediate, and advanced users.