



Workshop handout

# Introduction to 3D printing with FDM technology

# HELLO!

**In this two-hour workshop you will learn how to use an FDM 3D printer.** This allows you to produce fast and reliable 3D printed models with different types of filament plastics. By the end of the session, you will have understood the whole production process of an FDM printed piece: from preparing your data, to printing and post producing an object, and you will be able to work independently with a 3D printer.

This handout compiles the most relevant information about FDM printing. We encourage you to always come back to this material in case you have any questions regarding the use of the technology and the machinery.

## YOUR LEARNING OUTCOME

During this workshop you will learn how to:

- Design geometries suitable for prototyping with an FDM printer
- Understand the difference between SLA and FDM Printers
- Prepare your 3D file using Craftware Pro slicing software
- Use the Craftbot 3D printers



# FDM Printers

Using the FDM printers at MotionLab.Berlin requires you to use/buy your own material. We have discount codes for 3dk.berlin and flashforge.

Note: Generally, the FDM tech is compatible with a large number of thermoplastic polymers: PLA, ABS, polycarbonate, PET, PS, ASA, PVA, nylon, ULTEM and numerous other filaments based on metals, stone, wood and other materials.

The material brand requirement does not affect other FDM machines at MotionLab.Berlin.



## Machine specifications

|                          |  |
|--------------------------|--|
| Technology               | Fused Deposition Modeling (FDM)          |
| nozzle temperature       | 180-260 °C                               |
| tray temperature         | 50-110 ° C                               |
| ambient temp.            | 15 - 32°C                                |
| Build Volume (W x D x H) | 250 × 200 × 200 mm<br>5.7 × 5.7 × 6.9 in |
| Layer Thickness          | 0,1 mm                                   |
| Standard Material Ø      | 1.75mm                                   |

## Material temperature settings

| Material    | Head °C | Bed °C      |
|-------------|---------|-------------|
| PLA         | 215     | 60 (max 65) |
| Willow Flex | 180     | 60          |

source: Craftbot Data Sheet

<https://il.farnell.com/craftbot/craftbot-plus/3d-printer-250mm-x200mm-x-200mm/dp/2910926>



# Work process at when printing at MotionLab.Berlin

1. Before going into the the 3D printing area:

Object idea > CAD-design > export stl file to Craftware (note the time, add at least 15 min) > generate GCode > save GCode to USB-2.0-Stick > prepare/buy filament  
> schedule a booking on membership platform.

2. At the 3D printing area:

Check Kaftan on bed > if needed, go back to Slicing and adjust placement of your object and save GCode on USB Stick anew > check if bed level is okay > make a test run (observe the part in which the brim or skirt of your GCode is printing) > if needed: adjust + iterate

Happy printing!





# ALMOST THERE!

NOW, PARTICIPATE FROM  
THE LIVE WORKSHOP AND START  
WORKING ON YOUR PROJECTS!

---

**DID YOU LIKE THE CONTENT OF THIS WORKSHOP  
AND YOU ARE STILL NOT A MEMBER?**

Join our ecosystem and make your ideas come to life!

Reach out to our colleague [Matthew](#)

Or sign up for our [newsletter](#) to learn about the upcoming  
workshops and events.

---

**Note:**

This is a living document, which  
may experience changes as our  
labs evolve.

If any of the links don't work,  
please report it to

[info@motionlab.berlin](mailto:info@motionlab.berlin)

