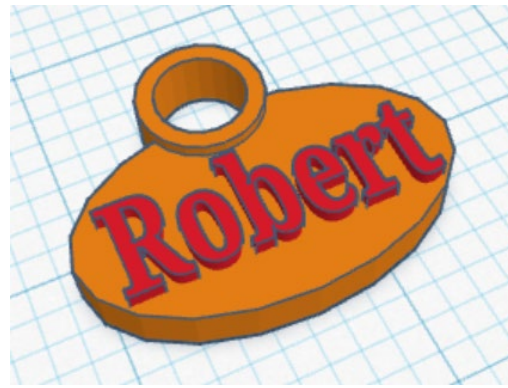# 1st Maker Space _Power Forward_ Series:
Introduction to Advanced Manufacturing

**Build your own
Ender 3 Pro 3D Printer**

Learn Tinker CAD for 3D Printing

Class 1: Design a Book Bag Tag
- Login to TinkerCad
- Explore Training Resources
- 3D Modeling vocabulary
- Shortcuts and Mouse Moves
- Adding, Adjusting, Merging shapes
- What is an STL file?
- Export your design as an STL File

Class 3: Build a 3D Printer – Part 1
- Open Box - Identify/Organize parts & tools
- 3D Printer Anatomy & theory of Operation
- Attention to detail
- Practical assembly guidelines
- Build base & uprights, add power supply, CPU/display, carriage & extruder assembly – Set for 110v

Class 2: From STL to GCODE
- What is slicing?
- Why GCODE?
- Login to Astroprint
- Config for Creality/Ender 3
- Import STL / Export GCODE
- Save to USB/microSD card

Class 4: Build a 3D Printer – Part 2
- Connect wiring harness
- Turn on – test Control panel, X, Y, Z & Extruder Steppers and bed heater
- Level bed
- Install PLA filament
- Print your nametag!

Classes are 90 minutes • Students should have Chromebook with USB/MicroSD adapter & WiFi
3D Printer Build requires 36" open desk space & electrical outlet for each student
1st Maker Space will provide 3D Printer Kits, tool storage box, 1 KG Spool of PLA filament
Includes detailed assembly instruction booklet, safety glasses and assessments
School should provide First Aid Kit, storage space for printers, empty carton disposal
Large Screen TV or Digital Projector is desirable

For more information contact: 1st Maker Space, 317-399-5001

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