

Futurvia Minds Society
2026 Creative Makers & 3D Printing Explorers – Level 2 Winter Program

COURSE OUTLINE

LESSON 1: Welcome, Level Check, Design Thinking

Total time: 45 minutes

- **Group 1:** ~30 - 35 minutes
- **Group 2:** ~45 minutes

Combined - 20 mins

- Instructor introduction
- Level 1 recap quiz
- What is design thinking (simple version)
- TinkerCad warm - up: Name Badge/ Initial letter
- Doubt checks every few minutes
- Lesson 5 preview

Group 1 - 10 - 15 mins

- Finish & decorate badge
- Simple creativity activity

Group 2 - 20 - 25 mins

- Design Improvement Challenge
- Share 1 improved idea

LESSON 2: Inside the 3D Printer + Print Failures

Total time: 45 minutes

- **Group 1:** ~30 - 35 mins
- **Group 2:** ~45 mins

Combined - 20 mins

- Printer parts: nozzle, hotend, extruder, bed
- How extrusion works
- Common print failures
- Why prints fail (simple explanation)

Group 1 - 10 - 15 mins

- “Print Detective Game”
- Match picture → failure type

Group 2 - 20 - 25 mins

- Analyze slicing profiles (Prusa, download optional, link)
- Identify failure causes
- Predict outcomes

LESSON 3: Advanced CAD Tools

Total time: 45 minutes

- **Group 1:** ~30 - 35 mins
- **Group 2:** ~45 mins

Combined - 20 mins

- Tool review (Align, Mirror, Ruler, Hole)
- Precision modelling basics
- Demo: Layered Nameplate

Group 1 - 10 - 15 mins

- Copy a simple model (house, rocket, tag)

Group 2 - 20 - 25 mins

- Build functional object
- Clip, stand, organizer, mini gadget

LESSON 4: Slicing Like an Expert

Total time: 45 minutes

- **Group 1:** ~30 - 35 mins
- **Group 2:** ~45 mins

Combined - 20 mins

- What slicing does
- Layer height and quality
- Infill patterns
- Supports and orientation
- Print - time comparisons

Group 1 - 10 - 15 mins

- Slicing Guessing Game

Group 2 - 20 - 25 mins

- Build 2 slicing profiles:
 - “Fast Print”
 - “High Quality Print”

LESSON 5: Resin, Powder, Metal, Food & Bioprinting

Total time: 45 minutes

- **Group 1:** ~30 - 35 mins
- **Group 2:** ~40 - 45 mins

Combined - 20 mins

- SLA (resin)
- SLS (powder)
- Metal printing
- **Food printing** (chocolate/pancakes)
- **Bioprinting** (simple explanation)
- Real industry examples

Group 1 - 10 - 15 mins

- Matching game
- “Magic Printer Drawing” activity

Group 2 - 20 - 25 mins

- Choose 1 technology → identify a real use case
- Short presentations

LESSON 6: Final Project Beginning

Total time: 45 minutes

- **Group 1:** ~30 - 35 mins
- **Group 2:** ~40 - 45 mins

Combined - 20 mins

- Project theme selection
- Printability rules
- Design brief overview

- Examples of good projects

Group 1 - 10 - 15 mins

- Start building a simple version

Group 2 - 20 - 25 mins

- Fill design brief
- Block out primary shapes

LESSON 7: Project Refinement + Print Prep

Total time: 60 mins

- **Group 1:** ~30 - 35 mins
- **Group 2:** ~45 - 60 mins

Combined - 20 mins

- Printability checklist
- Fixing common issues
- Exporting STL
- Slicing preview demo

Group 1 - 10 - 15 mins

- Final model finishing + fun decorations

Group 2 - 25 - 40 mins

- Troubleshooting
- Full refinement
- Slice & verify print readiness

LESSON 8: Showcase + Graduation

Total time: 60 mins

- **ALL students:** 45 - 60 mins (within Zoom limit)

Combined - 45 - 60 mins

- Students present final projects
- Awards & certificates (best 3 printed, best one gets the certificate)
- Feedback & celebration
- Closing remarks

No breakout sessions in this lesson.