FULL-DAY RUN SHEET

3D Printing Professional Learning

Practical skills for useful classroom printing.

08:30 - 16:30 | Four modules

TIME	SESSION
08:30 - 09:00	**Arrival** Refreshments and introductions
09:00 - 10:30	**Module 1: Introduction to 3D printing** Presentation
10:30 - 11:00	**Morning tea** Break
11:00 - 12:30	**Module 2: 3D prints in the classroom** Presentation, demonstration and CAD
12:30 - 13:30	**Lunch and workshop tour** Break
13:30 - 14:45	**Module 3: Jigs in action** Practical session
14:45 - 15:15	**Afternoon tea** Break
15:15 - 16:30	**Module 4: Mould session** Practical session

Venue, equipment, refreshments and workshop-tour arrangements are confirmed with your booking. This is the programme outline; activities may be adapted to the group and available facilities.

MODULE 1 | 09:00 - 10:30

Introduction to 3D printing

Additive manufacturing fundamentals

- How building a part layer by layer differs from subtractive manufacturing.
- An introduction to FDM, stereolithography, laser sintering and Multi Jet Fusion, plus specialist approaches such as layered paper and house printing.

A closer look at classroom FDM printers

- Printer configurations, the three axes and their control systems.
- Hot ends and extruders: how they work and where their limits lie.
- Common printing materials, which can be used and why.

From model to printer

- Slicing a model into toolpaths; balancing precision, mechanical properties and overhangs; exploring advanced settings.
- Meshes, file types, model repositories and CAD-created files.
- Where 3D scanning can fit into classroom work.

Keep the printer ready

- Common errors, a systematic troubleshooting approach and a servicing schedule.

10:30 - 11:00 | Morning tea

MODULE 2 | 11:00 - 12:30

3D prints in the classroom

Choose the right tool for the lesson

- Compare 3D printing with laser cutting, routing and hand tools.
- Consider precision, complex geometry and unattended printing alongside slow production, material costs and limited access for whole classes.
- Explore teaching aids for gearing, leverage, beam designs, mechanism cross-sections and wave patterns.

Jigs, fixtures and CAD

- Adapt reusable jigs to different materials, profiles and student groups.
- Watch or follow along as simple custom jigs are designed in CAD.

Design moulds that release

- Consider pouring, stamping, vacuum, oven-cure and compression applications.
- Build simple moulds from STEP designs and examine overhangs and pull lines.
- Add alignment and release features, including chamfers and pins; compare multipart and flexible moulds.

12:30 - 13:30 | Lunch and workshop tour

MODULE 3 | 13:30 - 14:45

Jigs in action

Explore how to create, source and use jigs for more consistent practical work.

Examples to explore

- Custom shims, spacers and washers; contour gauges.
- Wood and tube mitring guides; custom sanding blocks.
- Dowel drilling guides; welding and soldering jigs.
- Dovetail and finger-joint guides.

14:45 - 15:15 | Afternoon tea

MODULE 4 | 15:15 - 16:30

Mould session

Prepare and cast

- Examine pre-printed moulds, progressing from one-part to multipart designs.
- Discuss material selection and surface preparation for different layups.
- Create parts using wax, soap, plaster and urethane foam.
- Make silicone moulds from prints and explore how flexible moulds release complex shapes and overhangs.

16:30 | Finish