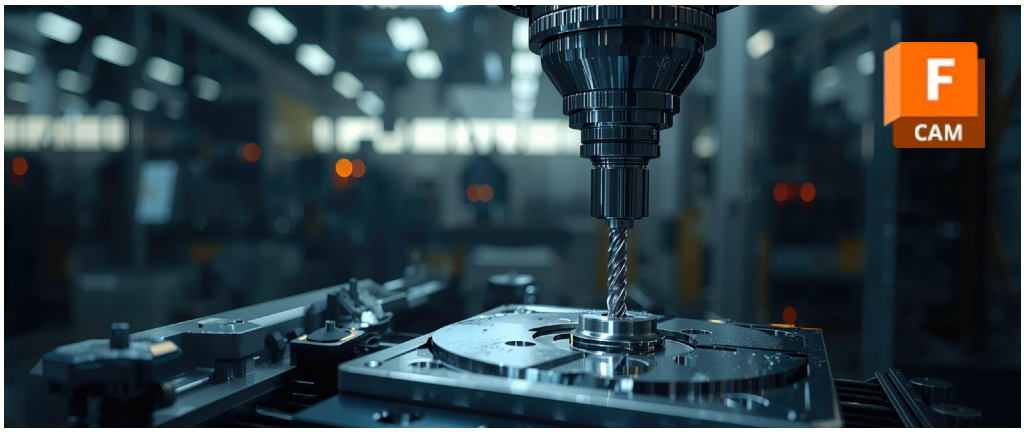
# Fusion CAM and CNC Advanced

## Training course outline

Course for those already familiar with the basics of CAM and CNC who want to improve and optimise their manufacturing capabilities.




### Course summary

Teaches techniques for optimising your manufacturing workflows, focusing on multi-axis machining, probing and inspection, and hybrid manufacturing. Sessions include:

- Advanced manufacturing setups
- Advanced toolpath settings
- 4 Axis manufacturing
- 5 Axis manufacturing
- Probing and inspection
- Simulation and post processing
- Additional workflows

*Some features covered in this course require the Fusion Manufacturing Extension. If you don't have access to this, we can provide it for the training.*

### Duration

Two days.

### Prerequisites

You should be familiar with the techniques taught in our *Fusion CAM and CNC Essentials* course (see armada.co.uk/fusion/syllabus).

### Windows or Mac

Fusion works similarly running on a Windows computer or Mac, and our course is suitable for users of both platforms.

If you attend a course in-class, you can choose to use a Windows computer or a Mac to practice the techniques taught.

### In-class or live online

You can attend in-person at our centres, or participate live online from your place of work or home.

To read about our approach to online training, see armada.co.uk/liveonline.

### General information

Armada is a long-standing Autodesk authorised Training Centre (ATC), and our *Fusion CAM and CNC Advanced* courses are accredited by Autodesk.

Courses are hosted by Autodesk Certified Instructors (ACIs) with vast experience of using Fusion professionally.

### Course materials and certificate

You'll receive:

- Training materials and video content recommendations.
- An e-certificate confirming successful completion of an accredited *Fusion CAM and CNC Advanced* course.

### After course support

Following training, you're entitled to 30 days' email support from your trainer.

### Further information

See armada.co.uk/course/fusionadvcamcnc or scan the QR code above.

### Course syllabus

See over.

### Other Fusion courses

- Fusion Essentials (2 days).
- Fusion Intermediate (2 days).
- Fusion Advanced (2 days).
- Fusion CAM and CNC Essentials (2 days).
- Fusion Sheet Metal Design (1 day).
- Fusion Technical Drawings (1 day).
- Fusion Additive Manufacturing (2 days).
- Fusion Simulation and FEA Stress Analysis (1-3 days).
- Fusion Generative Design (2 days).

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# Course syllabus

| Session | Topics |
|---|---|
| **Recap of CAM Basics** | Creating a setup<br>Creating 2D and 3D toolpaths<br>Simulating toolpaths |
| **Advanced Manufacturing Setups** | Advanced tool library settings<br>Optimal fixture setup and safety<br>Custom stock definitions<br>Orientation in multi-axis cuts |
| **Advanced Toolpath Settings** | Proper use of adaptive clearing<br>Complex geometry manufacturing<br>Advanced toolpaths – Steep and Shallow, Geodesic and more<br>Advanced toolpath options<br>Toolpath modification |
| **4 Axis Manufacturing** | 3+1 manufacturing<br>4 axis settings on 2D and 3D toolpaths<br>Rotary toolpaths: pocket, contour and parallel<br>Mill-turn vs 4 axis |
| **5 Axis Manufacturing** | Introduction and goals of 5 axis machining<br>3+2 Manufacturing<br>5 axis on 2D and 3D toolpaths<br>Collision avoidance<br>Lead and lean<br>Specific 5 axis toolpaths<br>Polar machining |

| Session | Topics |
|---|---|
| **Probing and Inspection** | Manual inspection workflows<br>WCS probing<br>Part probing<br>Processing probing data<br>Live connection<br>Inspection reports |
| **Simulation and Post Processing** | Avoiding collisions with multi-axis cuts<br>Machine simulation<br>Basics of editing post processors |
| **Additional Workflows** | Hybrid manufacturing with additive, fabrication and turning<br>Advanced tool library setup<br>Customising setup sheets<br>Verification of NC code<br>Hole Recognition tool |