OXFORD INSTRUMENTS

Technical Training Programme

Professional technical training courses to optimise system productivity and performance, covering all our platforms and all skill levels

Professional Technical Training

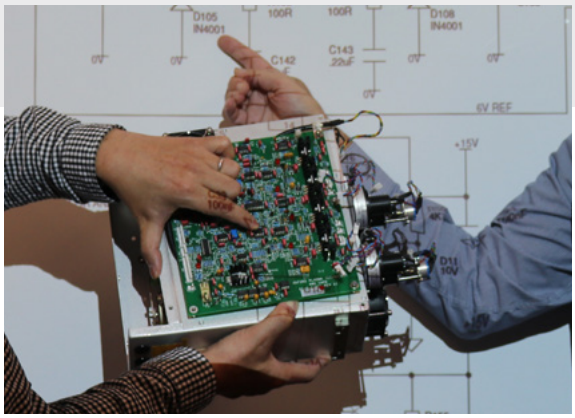
Oxford Instruments Plasma Technology offers a comprehensive range of technical training courses at introductory, intermediate, and advanced levels, as well as software and specialist training modules, covering all our major product lines.

Our technical training programme offers flexibility and helps deliver the full range of multidisciplinary skills and knowledge required to enable our customers to maximise their investment in Oxford Instruments Plasma Technology systems.

Most technical training courses comprise core units but we can incorporate additional modules as required and in accordance with your specific hardware specifications. We're happy to tailor our training content to the needs and experience of attendees, based on a training needs analysis that we'll conduct prior to assembling the final course agenda.

Most training courses are delivered from our UK headquarters (located near Bristol) but some courses can be delivered at customer sites (utilising your own Oxford Instruments Plasma Technology systems) or remotely (via applications such as Microsoft Teams).

Our technical training programme offers flexibility and helps deliver the full range of multidisciplinary skills and knowledge required to enable our customers to maximise their investment.



Professional Technical Training

Key Benefits

We have designed and developed our technical training programme to equip new and experienced system users with the knowledge and skills required to undertake basic system maintenance and fault diagnosis, maximising your system uptime and increasing your self-sufficiency.

Our technical training programme aims to share our deep knowledge and skills to enable our customers to optimise their system/s for productivity and performance.

Our technical training courses also help new and experienced users rapidly understand the correct use of system software, minimising risks to people and equipment.

Our new state-of-the-art UK headquarters are located in Severn Beach, just outside Bristol and close to local transport links. We look forward to welcoming you to our new site, which boasts outstanding facilities that help make our technical training programme an exceptional offer, including space for a brand-new world-class training suite and direct access to a range of our systems. Visitors and customers are also welcome to take advantage of our customer lounge area, private meeting rooms, and an on-site restaurant.

Course Target Level	Level 1 (Introductory)	Level 2 (Intermediate)		Level 3 (Advanced)	Specialist Technical Training Modules	
Course Title	New System User	Equipment	Maintenance	Advanced (PM Training)	Handler	Process
System Type	All platforms	All platforms	All platforms except FlexAL	All platforms	All platforms	All platforms
Places per session	6	6	4	6	6	6
Duration	2 days	3 to 4 days	3 to 4 days	Up to 14 days (system dependent)	1 day	3 days
Location	Plasma Technology HQ, customer site, or remote	Customer site	Plasma Technology HQ	Customer site	Plasma Technology HQ	Plasma Technology HQ or customer site

Level 1 (Introductory) New User

Suitability

New users and others unfamiliar with our system software.
Process engineers seeking to improve working knowledge of system software and hardware.

Level 1 (Introductory) technical training course designed for new members of your team or those unfamiliar with our system software. This course is relevant to all platforms.

- Level 1 (Introductory)
- Technical Training Specialist
- Customer site
- Classroom, cleanroom or remote on request
- 6 places
- 2 days

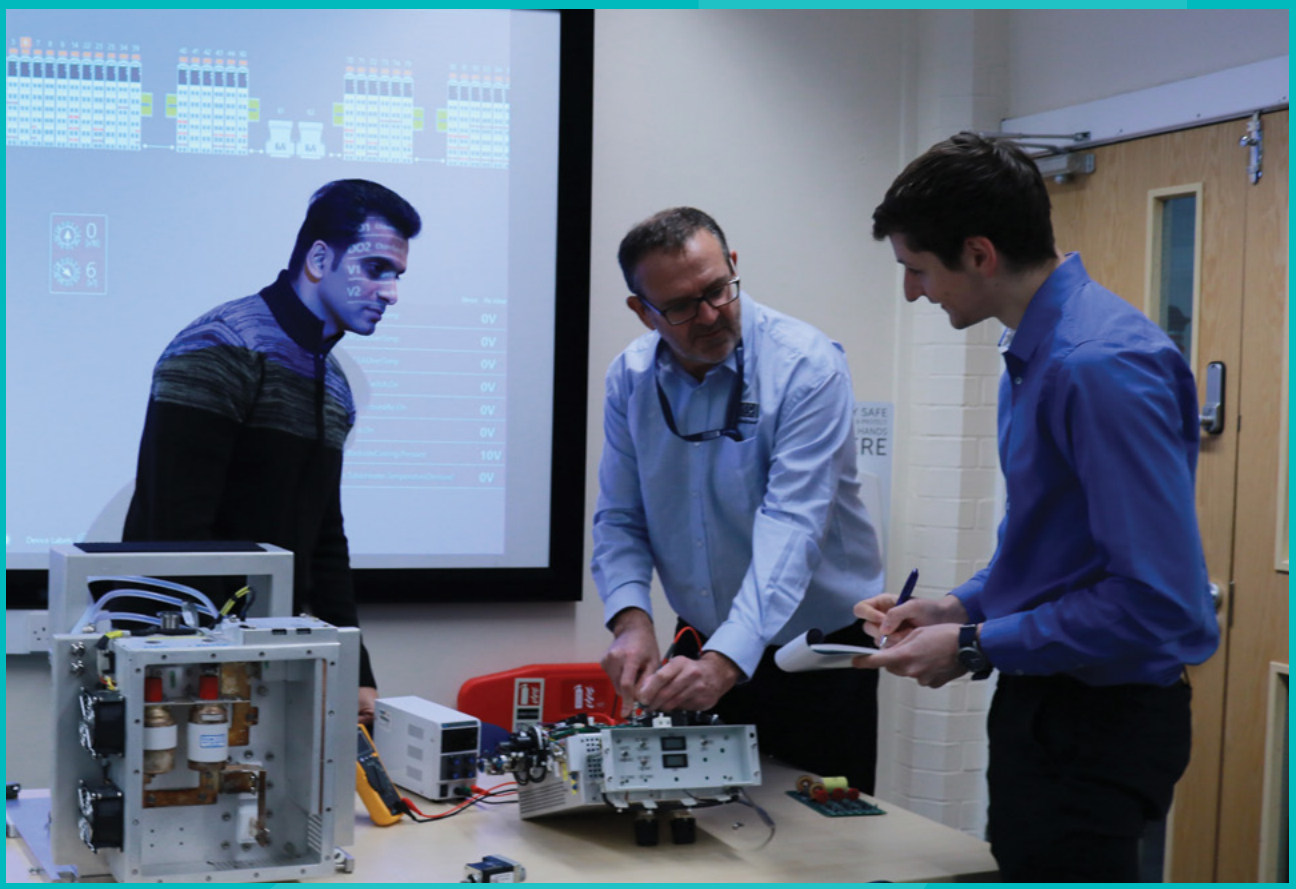
Course details

- Operation of PC4500/PTIQ system software in a risk-free environment
- Understanding of – and responding to – system alerts and messages
- Checking system services, internal power supplies etc.
- Start up and shut down procedures for the system
- Location of the main hardware components, including the EN13849 safety relays
- Hard drive layout – locating the system log files/diagnostic software log files/test documents
- Setting user login levels, limiting access, and assigning facilities
- Pumping page – explanation of the layout
- Process page – explanation of the layout
- Writing recipes
- Using service mode/hold and force options to assist in isolation of system faults, including worked examples of pumping/gauge fault diagnosis
- System health checks – fill rates, leak up rates, handling tests, plasma test, RF matching
- Using the LogViewer/Activity Explorer to view basic system health and process trends
- Using TeamViewer to access support services

Level 2 (Intermediate) Equipment and Maintenance Technical Training Courses

Level 2 (Intermediate) technical training courses suitable for maintenance or equipment engineers seeking to expand their knowledge of system components and software in our plasma and ion beam platforms.

Level 2 (Intermediate) courses are typically suitable for individuals with a basic familiarity of Oxford Instruments Plasma Technology systems' hardware and software.



Level 2 (Intermediate) Plasma Equipment

Suitability

Equipment engineers seeking to develop the essential skills required to better understand the various system components and interlock scheme.

Level 2 (Intermediate) course providing a detailed examination and exploration of multiple hardware blocks, software diagnostic options, and electrical schematics of your plasma system/s.

- Level 2 (Intermediate)
- Technical Training Specialist
- Customer site
- Classroom, cleanroom or remote on request
- 6 places
- 3 days

Course details

- System health and safety
- System health checks and benchmarking tool performance prior to maintenance
- Software – using service mode/hold and force option to isolate and diagnose faulty components, writing recipes to automate system health checks
- Introduction to vacuum
- LogViewer/Activity Explorer for identifying system health trends
- Using TeamViewer for remote assistance
- Location of the main hardware components
- Full schematic walkthrough
- X20 PLC and the Diagnostic Viewer/ Diagnostics IQ
- EN13849 (machinery standard safety circuit)
- Implementing essential procedures involving RF Matching and returning the Automatic Matching Unit (AMU)
- Basic maintenance procedures
- Fault identification and example diagnosis
- Handling configuration including wafer placement
- Understanding the interlock scheme and interpreting alarm signals
- Optional candidate assessment included (multi-choice question sheet)

Level 2 (Intermediate) Ion Beam Equipment

Suitability

Equipment Engineers seeking to develop the essential skills required to improve their understanding of the various system software screens, components, and interlock scheme.

Level 2 (Intermediate) course providing a detailed examination and exploration of system software, component parts, and interlocks for Ion Beam systems.

- Level 2 (Intermediate)
- Technical Training Specialist
- Customer site
- Classroom, Cleanroom
- 6 places
- 3 days

Course details

- System health and safety
- Constant current/constant voltage power supplies
- Basic system health checks and benchmarking tool performance
- Software – understanding the source controller, states, and error codes
- Maintenance page and motor control
- Location of the main hardware components
- Use and maintain the ion source, grids, and neutraliser
- Schematic walkthrough
- X20 PLC and stepper motor drive modules EN13849 (machinery standard safety circuit for ion beam) and interlock overrides
- RF Matching and setting up the Automatic Matching Unit (AMU)
- Basic maintenance procedures – bearing change and set up, water seals and grid cleaning (walkthrough videos)
- Understanding fault diagnosis, with example scenarios, and interpreting alarm signals appropriately
- Optional candidate assessment included (multi-choice question sheet)
- Using TeamViewer for remote assistance

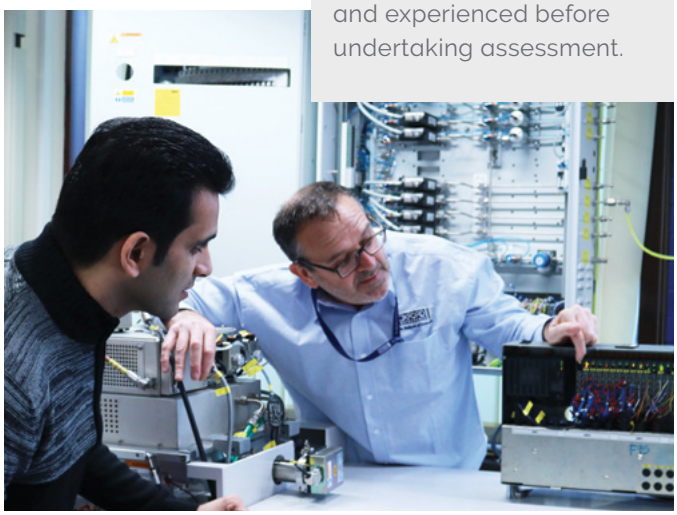
Level 2 (Intermediate) Plasma Maintenance

Level 2 (Intermediate) course providing skills and knowledge to aid fault-finding and hardware troubleshooting, as well as strengthening internal resilience.

- Level 2 (Intermediate)
- Technical Training Specialist
- UK headquarters
- Classroom
- 4 places
- 3 days
- Included

Suitability

Equipment Engineers seeking to develop the essential skills required to troubleshoot system hardware issues as they might arise, bringing self-sufficiency to the fault diagnosis process. Attendees will be working in and around live conductors during the fault tracing exercises and must be suitably qualified and experienced before undertaking assessment.



Course details

- System health and safety
- Benchmark tool performance and undertake system health checks
- Location of main hardware components
- Introduction to vacuum (if required)
- Disassemble and rebuild electrode and source
- Identify main hardware blocks and internal electrical structure
- Using LogViewer/Activity Explorer and Diagnostic Viewer/Diagnostics IQ for identifying system health trends and faulty hardware
- Full schematic walkthrough
- X20 PLC and the Diagnostic Viewer/ Diagnostics IQ
- EN13849 (machinery standard safety circuit)
- RF Matching and the Automatic Matching Unit (AMU)
- Demonstration disassembly of a **Plasma**Pro® **100** training tool, highlighting vacuum critical components and Preventative Maintenance overview
- Exploration using 3D CAD of the customers hardware configuration, highlight the areas for Preventative Maintenance
- Practice of diagnostic/fault tracing skills using actual scenarios as seen in the field
- Understanding theoretical units on the interlock scheme, PLC and RF
- Optional candidate assessment included (multiple-choice question sheet)

Level 2 (Intermediate) Ion Beam Maintenance

Level 2 (Intermediate) course providing knowledge and skills designed to enhance internal self-sufficiency by improving hardware troubleshooting and fault diagnosis.

Suitability

Equipment Engineers seeking to develop the essential skills required to troubleshoot system hardware issues as they might arise, bringing self-sufficiency to the fault diagnosis process. Attendees will be working in and around live conductors during the fault tracing exercises and must be suitably qualified and experienced before undertaking assessment.

- Level 2 (Intermediate)
- Technical Training Specialist
- UK headquarters
- Classroom
- 4 places
- 4 days
- Included

Course details

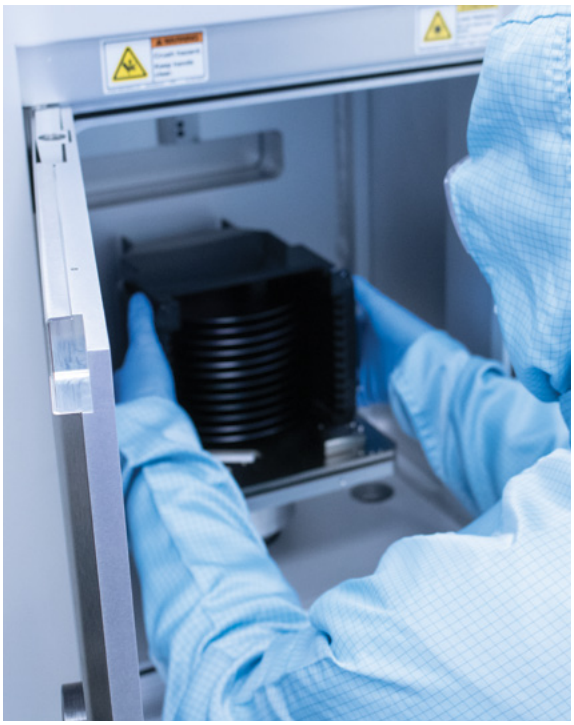
- System health and safety
- System health checks and benchmarking tool performance
- Introduction to vacuum (if required)
- Location of the main hardware components, such as platen, source, targets, and neutralise
- Introduction to Ion Beam
- LogViewer for identifying system health trends
- Full schematic walkthrough
- High voltage DC power supplies
- X20 PLC
- EN13849 for Ion Beam (machinery standard safety circuit)
- RF Matching and the Automatic Matching Unit (AMU)
- Essential skills – Practical units including:
  - Source disassembly
  - Grid cleaning
  - Neutraliser conditioning
  - Bearing change and set up
  - Water seals replacement
- Practice diagnostic skills and fault tracing exercise using actual fault scenarios as reported by field service engineers
- Optional candidate assessment included (multiple-choice question sheet)
- Understand the source state controller to aid isolation of system hardware failures

Level 2 (Intermediate) FlexAL Equipment

Suitability

Equipment and maintenance engineers seeking to develop the essential skills required to improve their understanding of the various system components and interlock scheme.

Level 2 (Intermediate) course providing a detailed examination and exploration of the various hardware blocks, software diagnostic options, and electrical schematics of your FlexAL system/s.



- Level 2 (Intermediate)
- Technical Training Specialist
- Customer site
- Classroom, Cleanroom
- 4 places
- 3 days

Course details

- System health checks and benchmarking tool performance
- Software: Using service mode to isolate and diagnose faulty components, writing recipes to automate system health checks
- Introduction to vacuum
- Using LogViewer for identifying system health trends
- Using TeamViewer for remote assistance
- Location of the main hardware components
- Full schematic walkthrough
- X20 PLC
- EN13849 (Machinery Standard Safety Circuit)
- RF Matching and the Automatic Matching Unit (AMU)
- Undertaking basic maintenance procedures
- Fault identification and example diagnosis, including Identifying and rectifying hardware issues arising from commonly occurring symptoms
- Handling configuration including wafer placement
- Optional candidate assessment included (multiple-choice question sheet)

Level 2 (Intermediate) PlasmaPro ASP Maintenance

Level 2 (Intermediate) course providing skills and knowledge to aid fault-finding and hardware troubleshooting, as well as strengthening internal resilience.

- Level 2 (Intermediate)
- Technical Training Specialist
- UK headquarters
- Classroom, Cleanroom
- 6 places
- 3 days

Suitability

Equipment Engineers seeking to develop the essential skills required to troubleshoot system hardware issues as they might arise, bringing self-sufficiency to the fault diagnosis process.

Attendees will be working in and around live conductors during the fault tracing exercises and must be suitably qualified and experienced before undertaking assessment.

Course details

- System health and safety
- Benchmark tool performance and undertake system health checks
- Location of main hardware components
- Introduction to vacuum (if required)
- Disassemble and rebuild CCP source Full exploration of system software and advanced features
- Identify main hardware blocks and internal electrical structure
- Using Activity Explorer and Diagnostic Viewer/ Diagnostics IQ for identifying system health trends and faulty hardware
- Full schematic walkthrough
- X20 Safety PLC and Diagnostics IQ
- EN13849 (machinery standard safety circuit)
- RF Matching and the Automatic Matching Unit (AMU)
- Demonstration of vacuum-critical areas on PP ASP system and Preventative Maintenance overview
- Exploration of system mechanics and configuration, using 3D CAD
- Practice of diagnostic/fault tracing skills using actual scenarios as seen in the field
- Understanding theoretical units on the interlock scheme, PLC and RF
- Optional candidate assessment included (multiple-choice question sheet)

Level 2 (Intermediate) PlasmaPro ASP Equipment

Level 2 (Intermediate) course providing a detailed examination and exploration of multiple hardware blocks, software diagnostic options, and electrical schematics of your plasma system/s.

Suitability

Equipment Engineers seeking to develop the essential skills required to troubleshoot system hardware issues as they might arise, bringing self-sufficiency to the fault diagnosis process.

Attendees will be working in and around live conductors during the fault tracing exercises and must be suitably qualified and experienced before undertaking assessment.

- Level 2 (Intermediate)
- Technical Training Specialist
- Customers site
- Classroom, Cleanroom
- 6 places
- 3 days

Course details

- System health and safety
- Benchmark tool performance and undertake system health checks
- Location of main hardware components
- Introduction to vacuum (if required)
- Full exploration of system software and advanced features
- Identify main hardware blocks and internal electrical structure
- Using Activity Explorer and Diagnostic Viewer/ Diagnostics IQ for identifying system health trends and faulty hardware
- Full schematic walkthrough
- X20 Safety PLC and Diagnostics IQ
- EN13849 (machinery standard safety circuit)
- RF Matching and the Automatic Matching Unit (AMU)
- Demonstration of vacuum-critical areas on PP ASP system and Preventative Maintenance overview
- Exploration of system mechanics and configuration, using 3D CAD
- Basic maintenance procedures
- Understanding theoretical units on the interlock scheme, PLC and RF
- Optional candidate assessment included (multiple-choice question sheet)
- Interpretation of error messages to aid frontline fault diagnosis

Level 3 (Advanced) Technical Training Courses

Level 3 (Advanced) technical training courses are aimed at experienced equipment engineers seeking to develop their understanding of all aspects of system maintenance.

These advanced-level courses include full instructions on individual system preventative maintenance programmes and a preventative maintenance kit.

One of the objectives of our advanced-level training courses is to help customers bring their preventative maintenance function in-house.

Please note the following for all Level 3 (Advanced) technical training courses:

Attendees will work in and around live conductors during the fault tracing exercises and must be suitably qualified and experienced before undertaking assessment.

A suitable room for presentations and classroom content should be allocated prior to the trainer arriving on site.

We deliver this training 9–12 months from system acceptance date or when the system is due for annual Preventative Maintenance.

Training dates to be agreed with our regional service team.

System must be fully functional and free from defects before advanced training can commence, with most recent log files supplied before training date is agreed.

Level 3 (Advanced) Plasma Platform

Suitability

Lab Managers seeking self-sufficiency in maintaining their own Plasma system/s and intending to bring annual preventative maintenance programmes in-house.

Level 3 (Advanced) technical training course including a full suite of technical training presentations on system operations, hardware, and schematics, and includes a system preventative maintenance kit. In addition, our training manager will perform a full system preventative maintenance routine with step-by-step instructions.

- Level 3 (Advanced)
- Technical Training Specialist
- Customer site
- Classroom, Cleanroom
- 4 places
- 5–10 days (dependent on system complexity)

Course details

Cleanroom based training units

- System health and safety briefing
- System health checks and benchmarking system performance
- Disassembly, cleaning, and full step-by-step instruction for complete system preventative maintenance routine, with candidates encouraged to work under close supervision
- Using LogViewer/Activity Explorer to identify preceding trends

Classroom based training units

- Location of the main hardware components
- Introduction to vacuum (if required)
- Full schematic walkthrough
- X20 PLC and the Diagnostic Viewer
- EN13849 (machinery standard safety circuit)
- RF Matching and the Automatic Matching Unit (AMU)
- Demonstration disassembly of the **Plasma**Pro® **100** training tool, highlighting the vacuum critical components and the areas where PM work should be done
- Fault tracing exercise using actual fault scenarios seen in the field and post PM issues, vacuum leaks, process drift, RF Matching
- Ongoing candidate (self) assessment

Level 3 (Advanced) Ion Beam

Suitability

Lab Managers seeking self-sufficiency in maintaining their own Plasma system/s and intending to bring annual preventative maintenance programmes in-house.

Level 3 (Advanced) technical training course, conducted by one of our technical training specialists, including a live demonstration of a full system preventative maintenance routine, with step-by-step instructions. We also include a preventative maintenance kit.

- Level 3 (Advanced)
- Technical Training Specialist
- Customer site
- Classroom, Cleanroom
- 4 places
- 5–10 days (dependent on system complexity)

Course details

Cleanroom-based technical training units

- System health and safety briefing
- System health checks and benchmarking tool performance and using LogViewer to identify preceding trends
- Full instruction and step by step guidance on a complete system PM, candidates encouraged to undertake the work under close supervision
- Essential skills – practical units including:
  - Source disassembly
  - Grid Cleaning
  - Neutraliser conditioning
  - Bearing change and set up
  - Water seals replacement

Classroom-based technical training units

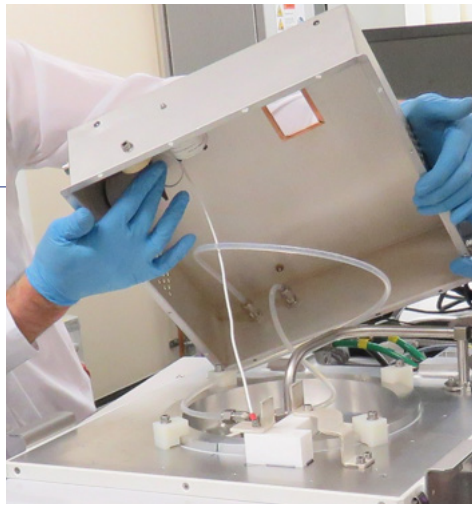
- Location of the main hardware components
- Full Schematic walkthrough
- X20 PLC
- EN13849 (Machinery Standard Safety Circuit)
- RF Matching and the Automatic Matching Unit (AMU)
- Demonstration disassembly of the training tool, highlighting the vacuum critical components and the areas where PM work is to be undertaken
- Fault tracing exercise using actual fault scenarios seen in the field and post PM issues, vacuum leaks, process drift, RF Matching
- Ongoing candidate (self) assessment

Level 3 (Advanced) PlasmaPro ASP

Suitability

Lab Managers seeking self-sufficiency in maintaining their own Plasma system/s and intending to bring annual preventative maintenance programmes in-house.

Level 3 (Advanced) technical training course including a full suite of technical training presentations on system operations, hardware, and schematics, and includes a system preventative maintenance kit. In addition, our technical training specialist will perform a full system preventative maintenance routine with step-by-step instructions. We also include a PM kit.



- Level 3 (Advanced)
- Technical Training Specialist
- Customer site
- Classroom, Cleanroom
- 4 places
- 5–10 days (dependent on system complexity)

Course details

- System health and safety
- Benchmark tool performance and undertake system health checks
- Location of main hardware components
- Introduction to vacuum (if required)
- Full exploration of system software and advanced features
- Identify main hardware blocks and internal electrical structure
- Using Activity Explorer and Diagnostic Viewer/ Diagnostics IQ for identifying system health trends and faulty hardware
- Full schematic walkthrough
- X20 Safety PLC and Diagnostics IQ
- EN13849 (machinery standard safety circuit)
- RF Matching and the Automatic Matching Unit (AMU)
- Demonstration disassembly of the PlasmaPro® 100 training tool, highlighting the vacuum critical components and the areas where PM work should be done
- Fault tracing exercise using actual fault scenarios seen in the field and post PM issues, vacuum leaks, process drift, RF Matching
- Ongoing candidate (self) assessment
- Interpretation of error messages to aid frontline fault diagnosis

Specialist Technical Training Modules – Process and Handler Technical Training

We offer two specialist technical training modules for Process and Handler.

The Process module is suitable for applications engineers seeking to develop the essential skills required to improve their understanding of the various chemistries, including optimisation and analysis.

The Handler module is suitable for equipment engineers seeking to develop the essential skills required to re-teach the robot, configure tool handling, and undertake a wafer size change.

Process Technical Training Module

Suitability

Applications engineers seeking to develop the essential skills required to improve their understanding of the various chemistries, including optimisation and analysis.

Our Process training module is aimed at applications engineers and provides the essential skills required to improve their understanding of the numerous chemistries used in processing.
The module also covers the optimisation and analysis of process runs.

- Specialist-level
- Applications Engineer
- Customer site
- Classroom, cleanroom
- 6 places
- 3 days

Course details

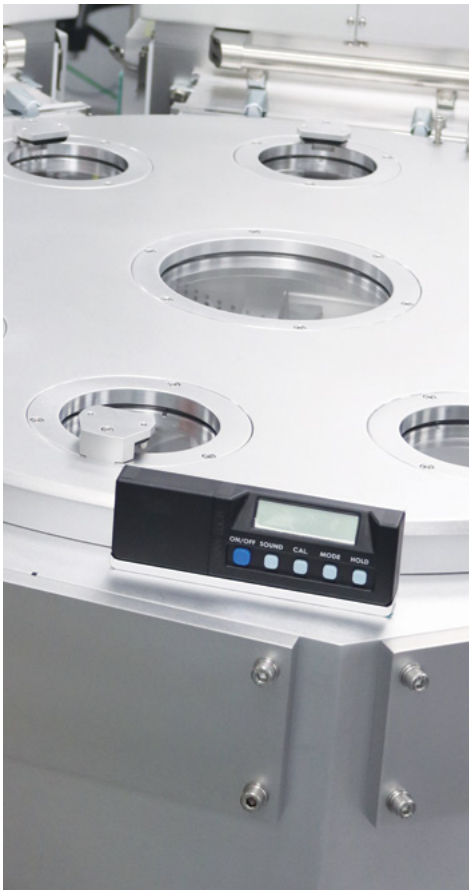
- Operation of tool
- Sample Loading onto carrier wafers
- Introduction to vacuum
- Using LogViewer/Activity Explorer for identifying system health trends
- Using TeamViewer for remote assistance
- Writing recipes
- Running recipes
- Safety considerations
- Process troubleshooting
- Introduction to process (can be general or specific to customer requirements)
- Process setup and optimisation (including process trends)
- Process measurements and analysis techniques
- Endpoint training (optional module)
- Chamber cleaning (Plasma and mechanical cleaning)

Handler Technical Training Module

Suitability

Equipment engineers seeking to develop the essential skills required to re-teach the robot, configure tool handling and complete a wafer size change.

Held at our UK headquarters, near Bristol, this specialist module provides the skills required to operate the Brooks MMX, Hine or EMS handler platforms.
We designed this specialist module for maintenance and equipment engineers requiring handler training.



- Specialist-level
- Technical Training Specialist
- UK headquarters
- Classroom, Cleanroom
- 4 places
- 1 day

Course details

This technical training module involves the MMX, Hine, or EMS training system robots, with an emphasis on tuition and practice in a safe and controlled environment.

- Brooks/EMS terminology
- Elevator and wafer mapping configuration
- Basic set-up for the various facets/station
- Safety hub indicators
- Wafer size change – aligner and loadport/elevator
- Handling recovery
- Wafer transfer
- How to rectify wafer placement errors and reset the handling using the hand pendant

Delivering Maximum Performance

For further information please contact your local Oxford Instruments Plasma Technology office.

Oxford Instruments provides services for R&D start-up and fab expansion, from pilot lines to mass production. Whatever your needs we have a service package to ensure your system and lab or fab are operating at peak performance.

Do you want to avoid unexpected service costs?

Unexpected system failures not only disrupt your productivity, but can also lead to expensive and un-budgeted repairs. Purchasing a service support agreement that provides an annual PM and breakdown cover can help protect you from unexpected costs, saving you money and valuable time..

Do you want to minimise system downtime?

To minimise downtime, cover your system under a service support contract with a guaranteed response time from our telephone technical support teams and dedicated Field Service Engineers (FSE). Our highly-skilled field engineers aim to deliver an efficient, first-time fix rate to ensure your system is back up and running as quickly as possible.

Do you want to maximise your investment and system life-span?

Annual preventative maintenance (PM) can help ensure your system remains fully optimised and operational, increasing your efficiency, productivity but ultimately minimising the risk of an unplanned breakdown.

Scan QR Code to register your interest

Email
plasma@oxinst.com

Phone

UK, Bristol
+44 (0) 1934 837000

Germany, Wiesbaden
+49 6122 937 161

India, Mumbai
+91 8181 017017

Japan, Tokyo
+81 3 5245 3261

PR China:
- **Beijing**
- **Guangzhou**
- **Shanghai**

+86 400 678 0609

Singapore
+65 6337 6848

Taiwan
+886 3 5788696

US, Canada & Latin America
Concord, MA
+1 800 447 4717

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